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CONTENTS

Frontispiece 268
Editorial 269
Production 285
Foreign Oil Legion 286
Finance 293

Special Articles

U. S. Oil Code Effective September 2 271
Jersey Standard and Socony-Vacuum May Merge in Far East 272
Little Beneficial Effect from U. S. Oil Tariff 273
Franklin Sees Need for Higher Oil Tariff ..... Wirt Franklin 277
Oil Industry Assailed by Unjust Taxation — Major H. E. Crawford 278
Six Percent Increase in British Oil Imports 279
Oil Code's Premium for Refining Efficiency 280
Science of Automatic Control in Refining ..... C. E. Mason 281

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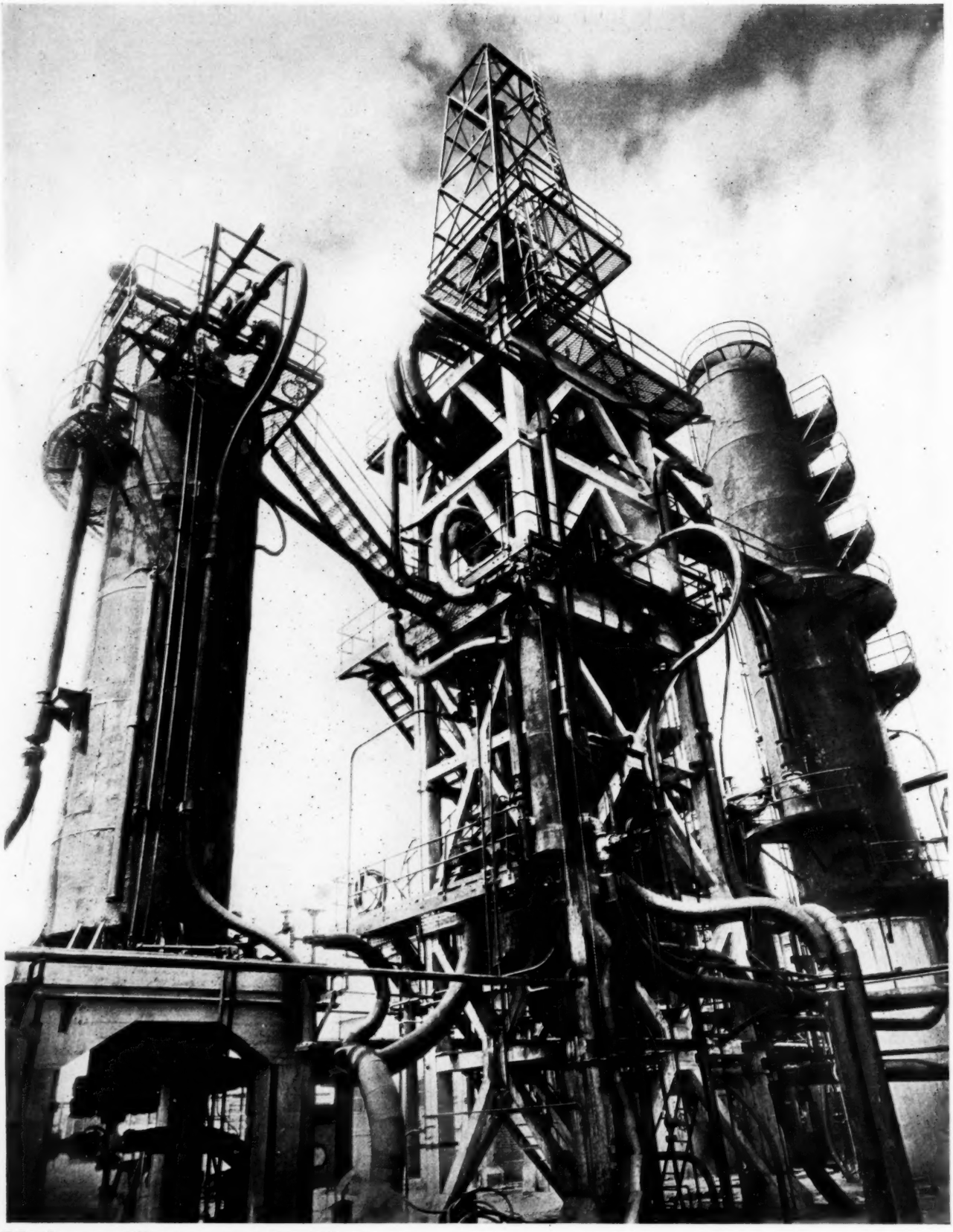

Modern refinery construction

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Price Alternatives

PRICES of crude petroleum and products must be improved just as the prices of all other commodities must advance if the efforts of the administration under the NRA are to be successful in relieving the economic depression in the United States. The question of vital concern to the oil industry is the means taken to improve petroleum prices. Should these take the form of fixing prices by presidential decree; or should they take the form of balancing supply with demand and then allowing immutable laws of economics to serve as the means by which this balance is translated into remunerative prices?

With the formulation of a Code of Fair Competition for the oil industry by the National Recovery Administration providing for establishment of prices, the signature of this code by the President on August 19, and the selection of a committee of fifteen to administer the code, in which a substantial majority favor governmental price fixing, the victory seems to rest temporarily with the group who championed this side of the question. The ratio of refinery gasoline prices to crude oil prices of definite grade is fixed by the code and the President is empowered to fix the price of refinery gasoline for any test period up to ninety days. Indications are that on the recommendation of the Oil Planning and Coordinating Committee the President will attempt to fix the price.

With the exception of the price fixing feature of the Code of Fair Competition for the oil industry, the code is an excellent instrument by which the industry should be able to resolve present chaotic conditions with the help of federal and state governments into a rational and remunerative industry. The code itself is a great step forward; considered in connection with nation-wide efforts in other industries to establish fair competition it should prove a means of shortening and smoothing the rough road out of the morass of economic depression.

It may nevertheless be true that all provisions of the oil code are not to the best interests of the industry as a whole. Among these, the price fixing clause is the one that has caused the most controversy and the one which the weight of evidence seems to prove ultimately harmful. It should not be, and actually has not been made the cause for refusal to cooperate by those who forsee that it may not operate either fairly or successfully. Such data as are available, however, may be carefully examined in an effort to evaluate this clause. The immediate future of the oil industry hinges largely upon the success of the code.

Case Against Price Fixing

THE HISTORY of attempts to fix prices by proclamation and by authority is the history of a series of failures. During the Middle Ages the price of practically every commodity in common use including labor was fixed at one time or another and severe penalties were established for sale of commodities below the legal price. In every case these attempts failed and economic law always reasserted itself in changing the price to adjust supply to demand. Eventually such attempts were abandoned.

The important features of the new regulations are the recommendation of production quotas to states by the federal government and the enforcement of these quotas through regulation of interstate commerce, thus leading to effective proration; the recent presidential order prohibiting transportation of hot oil; and finally, the possibility that under the new regime tax evasion may be eliminated. If these provisions are made effective, the price of crude and products will adjust itself to a remunerative level; if they are not, as suggested in the current issue of the LAMP, price regulation will be superfluous.

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Code Influence on World Market

IN ANY EVENT, it is obvious that the price of petroleum, like the price of all other commodities, is going to advance in the future. The administration is definitely committed to an advance in prices. If all else should fail the alternative of inflation may be used. In view of the fact that present refining capacity of the world, although increasing rapidly, is as yet insufficient to supply the world demand for motor fuel without shipments from the United States, advanced prices in the United States may affect markedly the export situation. Petroleum for export will be sold at prices with which the government will probably not interfere. But a higher price in the United States will enable companies to raise the Gulf price of gasoline to a remunerative level without fear of a flood of distress gasoline from flush fields wrecking the price.

Exporting companies may not, however, take advantage of this opportunity. For some years U. S. exporters have been losing their position in world markets. If they wish to take advantage of a higher Gulf price to obtain a profit, they can continue to lose markets abroad. But at least during the years required to build up sufficient refining capacity abroad to supply

the world demand without benefit of U. S. exports, U. S. companies can sell in world markets at a profit. On the other hand, with profitable operations on the home market and higher world prices these companies would be in a position to retain their present share in world markets and check the current trend which indicates eventual loss of these markets. This might be done by sacrificing profit from export trade to hold prices below the figure at which other countries would be willing to export over a protracted period.

The third and most desirable alternative would be to retain the right to supply a fair share of the world markets and make a moderate profit. This could be accomplished through international agreement.

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Facilitating International Agreement

THE ENTIRE situation would seem to be developing along lines that will eventually facilitate international agreements governing world trade in petroleum. Uncertainty in the minds of countries abroad concerning the status of the United States will be removed if the industry in that country is stabilized, creating a frame of mind in which leading exporters of the world will be more willing than heretofore to enter agreements which the U. S. exporters will be able to live up to. With both federal and state governments committed to a program of production restriction, these companies will be able to give definite assurance of a limitation of exports.

The mechanism of international agreement has been established by two years of effort on the part of major exporting companies of the world. With the United States exporters in a position to give definite assurances of restricted production and advanced price in the domestic market a definite agreement should be possible without the disturbing factors which have hitherto nullified such efforts.

The menace of a flood of cheap crude and products is at least temporarily removed from world markets. Russian exports are declining and the internal situation in that country is such that her influence on world markets will be of decreasing importance for, at least, the immediate future. This fact apparently was recognized in the late conferences designed to lead to international agreement. Statistics show that Russian production is not keeping pace with the tempo of former years; internal consumption is steadily increasing with the industrialization of the country and the mechanization of agriculture. These facts lead to the conclusion that an increasing share of Russia's temporarily decreasing supply will be required for the home market. Soviet exports should therefore, continue to decline.

With Russia removed as a menace to world stability in petroleum trade and the United States in a position to adhere to an agreement governing exports, other countries which have already demonstrated their willingness to enter such an agreement will be in a position to give and accept assurances that have heretofore proved impossible of fulfillment.

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A Premium for Efficiency

ONE FAVORABLE result of the oil code as it stands at present is the high premium it is going to place on refining efficiency. The more efficient refiner is going to receive a higher return in proportion to the less efficient than ever before. The modernization of plant and equipment, long advocated by WORLD PETROLEUM as the logical way of combating conditions that have existed during the past few years, is no longer going to be a matter of choice but an absolute necessity for the refiner who wishes to remain in business. If the increased profits which the petroleum industry hopes to see as a result of wholehearted cooperation with the National Recovery Administration, materialize, refiners will be in a position to purchase the modern and efficient equipment without which they cannot hope to operate under the new set-up established by a fixed ratio between the price of gasoline and the cost of crude.

A simple demonstration of the premium that the new act will pay for efficiency in refining may be seen in a comparison of the return from refining one barrel of crude for a forty percent recovery against refining a barrel of crude for a fifty percent recovery. In the first case, with the price of refinery gasoline fixed at three cents the refiner loses 5.1 cents on the gasoline recovered, a loss which must be made up from other products. On the other hand, a recovery of fifty percent means a margin of +5.5 cents on the gasoline alone. If the price were fixed at five cents per gallon for refinery gasoline a forty percent recovery would mean a loss of 8.5 cents on the gasoline alone; whereas a fifty percent recovery would mean a margin of +12.5 cents on the gasoline alone. Finally if the price of refinery gasoline were fixed at eight cents per gallon, forty percent recovery would mean a loss of 13.6 cents per barrel of crude refined on the gasoline alone; but a recovery of fifty percent would mean a margin of +20.0 cents per barrel of crude on the gasoline alone.

Obviously, not only is the premium going to stimulate the installation of efficient refining equipment, but it is also going to accelerate the trend toward deep cracking. The refiner who will be able to obtain a fifty percent recovery will be assured of a margin in his favor on the production of gasoline alone. The refiner who recovers less than forty percent will be eliminated.

Oil Code hearing at Washington: General Hugh Johnson may be seen on the dais.

U. S. Oil Code Effective September 2

Oil Industry Code Signed by President August 19, Became Effective September 2. Committee of 15 For Planning and Coordination Selected. President Empowered to Fix Petroleum Prices.

THE OIL CODE for the petroleum industry became effective September 2 thereby fulfilling the National Recovery Administration's program of having the matter settled and in operation by Labor Day (September 4). The Oil Planning and Coordination Committee has been announced and consists of 15 members, three of whom were selected from the recovery administration and 12 of whom represent the United States petroleum industry. The code itself provides for price fixing by the President or his agent, limits withdrawals from storage to 100,000 bbl. daily, contains a clause prohibiting the renewal of lease and agency contracts, and provides for federal "recommendation" of production quotas to the several states, which if not lived up to, gives the President power to regulate oil shipments out of that state in interstate commerce.

Following arduous hearings in Washington, when it became apparent that agreement between the several factions of the industry on the subject of price fixing and other provisions of the code, was impossible, General Hugh Johnson, National Recovery Administrator, produced on August 17, a code which was to be submitted to the president for signature on the following day. Objections were to be registered before ten o'clock the following morning. After a difficult all night session three separate groups representing various sentiments of the industry adjourned and recommendations were submitted to the Administrator. The code, however, was signed by the President on the 19th with but slight modification.

The impossibility of obtaining full agreement from opposing factions of the industry led to signature of the code and acceptance of it by the industry in a form that was supposed to be subject to modification before it went into effect on September 2. To facilitate modifications before and after the effective date a Planning and Coordinating Committee of 15 was to be selected containing oil industry and government representatives. This committee has now been announced but as the first meeting was held on September 1 after the departure of the President for a brief cruise, modification of the code before the effective date became impossible.

In the latter stages the disagreement of the industry became an acrimonious dispute over the value of governmental price fixing. In the final form the code provides for a fixed price of 18.5 times the tank car price of a gallon of 60–64 octane gasoline in group three market as the price to apply to 36–36.9 degree, A.P.I. gravity, mid-continent crude. The tank car price of 60–64 octane gasoline in the group three market may be fixed by the President or his agent for a test period of any time up to 90 days after which he has the power to extend the period during which the price is to be fixed.

During the arguments over this clause, the anti-price fixing group resolved itself into a section of the Chicago committee of 54 led by the Standard Oil Company of New Jersey, Socony-Vacuum Standard of Indiana, Shell, Gulf, and others. The other important group favoring some form of government price control consisted of the balance of the committee of 54 led by Wirt Franklin, Standard of California, Standard of Ohio, Consolidated and the conservative independents. A third group who rejected the whole code consisted of radical independents headed by Jack Blalock of Texas, Keck and Howard of California, Dan Danciger of Oklahoma, and others.

Price fixing does not become effective until the President establishes it, an eventuality which might possibly not occur. The concensus, however, is that the President will fix the base price of gasoline for some test period not to exceed 90 days and thereafter be guided by results of the test and recommendations of the newly formed committee of 15.

The Planning and Coordinating committee of 15, the announcement of whose selection was made public on August 30 consists of the following names:

For the N. R. A.: James A. Moffett, former senior vice-president of the Standard Oil Company of New Jersey; Donald R. Richberg, general counsel of the N. R. A.; M. L. Benedum, of Pittsburgh.

For the industry: Axtell J. Byles, president, American Petroleum Institute; Wirt Franklin, president, Independent Petroleum Association; R. T. Zook, president, Pennsylvania Grade Crude Oil Association; Howard Bennett, Western Petroleum Refiners' Association; W. T. Holliday, president, Standard Oil Company of Ohio.

Also F. B. Reeser, president, Barnsdall Oil Corporation; K. R. Kingsbury, president Standard Oil Company of California; B. L. Majeski, Petroleum Marketers' Association; Henry M. Dawes, former Comptroller of the Currency, and president of the Pure Oil Company; C. F. Roeser, the Texas Oil and Gas Conservation Association; Amos L. Beaty, Phillips Petroleum Company, and C. E. Arnott, president, Socony-Vacuum Corporation.

Regulation of production by the federal government is provided for by two sections of the code one of which provides an agency to allocate equitable quotas for production by the states of a quantity of crude necessary to meet consumer demand. These quotas, which will be based largely on figures furnished by the Bureau of Mines, will then be recommended to the various producing states as operating schedules. In case any state produces in excess of the recommended quota, the president has the power to regulate shipments of petroleum in interstate commerce, out of that state, to the extent necessary to effectuate the purposes of the National Recovery Act.

Traditional Texan opposition to federal interference with state functions and the expressed view of Col. Thompson, Texas Railroad Commission, objecting to federal allocation of production to states, indicates that the first test of the constitutionality of the code may come from Texas.

Following presidential signature of the code, the Standard Oil Company of New Jersey through its house organ the LAMP, professed itself in favor of the code with the exception of the provision relating to price fixing. The LAMP took the position that if the provisions designed to create a balance between supply and demand were enforced, price fixing would be unnecessary, while if these provisions were not enforced price fixing would be futile. H. F. Sinclair went on record in the press as being strongly in favor of price fixing by the government in preference to price fixing by a few large companies which he charged had been controlling prices in the past.

Major Integrated Company For Far East?

Jersey Standard and Socony-Vacuum Contemplate Combining Facilities in the Far East in Major Company Producing From Jersey Properties and Marketing Through Socony-Vacuum

MERGER of producing and refining properties of the Standard Oil Company (New Jersey) with marketing outlets of the Socony-Vacuum Corporation in the Far East is in contemplation by those companies. The merger would probably take the form of the establishment of an operating company controlling Jersey Standard's refinery at Sumatra, producing properties of this company in Netherland India and marketing outlets of the Socony-Vacuum which could be economically supplied from the refinery. Although formation of such a company is still only under consideration by the companies involved—no definite action having as yet been taken—the operating economies are so obvious that it may be assumed that official announcement of the new company will be made in the near future. Many such combinations of facilities in foreign fields are, however, frequently under consideration by all major companies and successful conclusion of negotiations that are admittedly under way looking to the creation of this company, has not as yet been officially announced.

OPERATING economies of advantage to both companies may be achieved if the projected plan for the formation of a $100,000,000 company in the Far East is successfully concluded by the Standard Oil Company (New Jersey) and the Socony-Vacuum Corporation. Although the matter has been under consideration and the subject of negotiations for well over a year, indications are that formation of the new company may be announced in the near future. As a demonstration of the value of cooperation the plan is interesting; the complementary nature of the properties of the Jersey Standard and the marketing outlets of the Socony-Vacuum is obvious. Russian contracts with Socony-Vacuum which recently expired and have not since been renewed are said to have no connection with the pending deal.

The combination of Jersey Standard's producing and refining properties in Netherland India with marketing outlets of Socony-Vacuum would be the logical result of the excess supplies of petroleum products of the former company and the need for additional supplies conveniently located, for the latter.

Standard Oil Company (New Jersey) controls through subsidiary companies a 25,000 bbl. per day refinery of modern construction, completed in 1926 at (Soenger) Palembang, Sumatra, at a cost of approximately $28,000,000 and a 5,000 bbl. per day refinery at Kapoean, Java. Producing properties in Java at Rembang and in Sumatra at Palembang supply these refineries with crude. These producing properties are said to have been developed at a cost of approximately $22,000,000, making the total value of the Jersey company's contribution to a possible company in the neighborhood of $50,000,000. It is estimated that the daily potential production of Jersey Standard's producing properties in Netherland India is about 100,000 bbl., the majority of which is shut in at present. As the Jersey Standard's marketing facilities in the Far East are inadequate to handle the output of this refinery, the company has resorted to sales to other companies, including Socony-Vacuum.

Socony-Vacuum Corporation, through its control of the Standard Oil Company of New York, a pioneer in the development of the Chinese market, has marketing facilities in almost every country of the world. Marketing outlets are particularly concentrated in the Far East. Supplies, however, have had to be shipped from distant points as Socony-Vacuum has no refineries conveniently located to supply the Far Eastern market. While no official statement from the company has been made on which markets would be turned over to the new company, should negotiations for its establishment be successful, it may be assumed that Japan, China, British India, Australia (temporarily), New Zealand, and South and East Africa would be included.

The Standard Oil Company (New Jersey) subsidiary which operates the Palembang refinery, producing properties in Palembang, Sumatra, and a 5,000 bbl. refinery at Kapoean and producing properties at Rembang, Java, is the Nederlandsche Koloniale Petroleum Maatschappij.

Stock in the projected company would be held exclusively by the Jersey Standard and Socony-Vacuum companies, probably in proportion to the assets that each company contributed to the new company. As in the case of the Jersey company these can be roughly estimated at $50,000,000 it is likely that the new company will have assets of close to $100,000,000.

Contrary to rumors concerning the combination under consideration, it is not a result of difficulties experienced by the Soviet oil industry in fulfilling contracts for sale of petroleum products to the Socony-Vacuum. The merger has been under consideration for well over a year and is not the result of Russian developments.

Little Beneficial Effect from Import Tax

Company Realignments, Increased Refinery Construction, and Simple Readjustment of Oil Flow in International Trade, Most Important Results of U. S. Oil Import Tax. *By B. B. Zavoico*

TWO YEARS ago great improvements in the domestic petroleum industry were freely promised as a result of the proposed import tax on crude and refined products entering the United States. Have these benefits actually been realized? Those opposing the tariff, principally New England industrialists who foresaw an increase in the price of fuel oil on the eastern seaboard, anticipated prohibitive expense in generating power from domestic oil. What has actually happened since the import tax became effective? Have the optimistic promises of the pro-tariff faction or the dire predictions of the anti-tariff group been fulfilled? How have countries supplying the United States with petroleum been affected? In the accompanying article Mr. Zavoico reviews impartially the actual results of one year of American tariff on petroleum and products.

THE United States petroleum import tax, imposed June 21, 1932, was made effective after long and active agitation and lobbying in Washington by independent domestic producers. Opposition to it by the major American concerns with foreign production, partially as a result of general political considerations, took the form of statements that an import tariff for an industry with exports far exceeding imports was an economic fallacy, hence, would be ineffective in solving the domestic difficulties of the industry and in raising the prices of crude oil and its products. Principal source of opposition to the import tax was eastern seaboard manufacturers who wished to avoid an advance in the price of fuel oil.

The import tax imposed on foreign products had for its purpose complete exclusion of motor fuel and partial exclusion of crude and other heavy oils. Accordingly the taxes imposed for one year on June 21, 1932, and recently extended till June 30, 1934, levied two and one-half cents a gallon on gasoline and motor fuel (subsequently extended to cover technical naphthas); twenty-one cents a barrel on crude petroleum, fuel oil and gas oil; four cents a gallon on lubricating oils and one cent a pound on paraffin and other wax products.

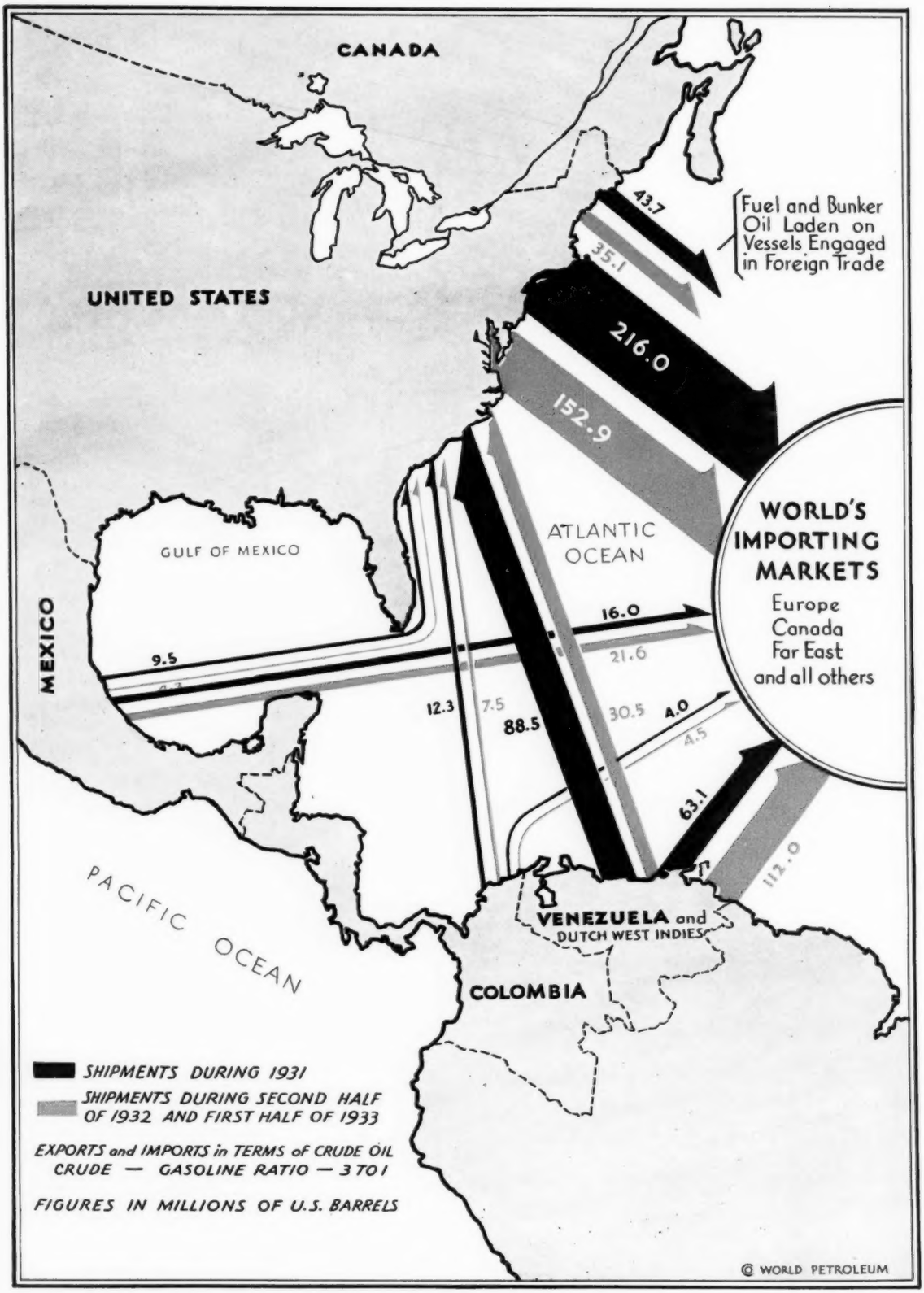
In this summary actual results of the first year under the oil import taxes in the United States are analyzed, and the consequent effects of the de facto tariff upon domestic and foreign oil developments are indicated.

All data presented in this review are calculated on the basis of 6-month periods of each year, because the import tax affected only the second half of 1932, and because the increased rate of imports during the first half of 1932 was influenced by anticipation of the duty, thus causing heavy shipments in order to avoid the payment of import taxes. Therefore in further discussions of the effect of the import tax upon American and international oil shipments figures for the first half of 1932 will not be considered.

Export trade of the United States in petroleum products steadily increased until the end of the first half of 1930, when total exports reached 77,600,000 bbl., of which 34,800,000 bbl. were motor fuel, 9,160,000 bbl. were kerosene and 5,292,000 bbl. were lubricants, all valued at $270,500,000. In the same period of time, first half of 1930, total imports into United States amounted to 52,600,000 bbl., of which, however, only 8,200,000 bbl. were motor fuel, all valued at $67,800,000. By far the largest proportion of the imports was crude oil, amounting to 31,100,000 bbl., which was refined at Atlantic coast refineries of United States at an indicated rate of 170,000 bbl. per day, or 70,000 bbl. per day less than in the corresponding period of 1929, when 43,900,000 bbl. of foreign crude oil were imported.

The decreased demand for export of petroleum products was first felt during the second half of 1930, and was further accentuated in 1931 and in the first half of 1932. In the second half of 1931, the last actually comparable export and import period, total exports declined to 57,900,000 bbl., of which 21,900,000 bbl. were motor fuel, 6,603,000 bbl. were kerosene and 4,044,000 bbl. were lubricants, all valued at $122,900,000. In the same period of time, the second half of 1931, total imports amounted to 41,300,000 bbl., of which 6,600,000 bbl. were motor fuel, all valued at $39,900,000; crude oil imported for refining in United States during these six months reached 21,700,000 bbl., indicating that East Coast refineries ran to stills 119,000 bbl. of foreign crude oil per day during the second half of 1931, which was 51,000 bbl. per day less than during the first half of 1930, and 121,000 bbl. per day less than during the first half of 1929. Since 1929, and till the middle of 1931, the crude oil exports from the United States remained virtually unchanged at around 12,000,000 bbl. in each six-month period; but the very cheap crude oil produced in the East Texas field, near Gulf Coast export points, was responsible for subsequently increased crude oil export shipments.

Therefore the above figures indicate a continued loss of foreign markets for American refined products till the promulgation of the import tax in the United States on June 21, 1932. The decline in foreign demand has been due not only to a major industrial depression, but also to the refinery construction program in several European countries, which factor was reflected in increasing shipments of crude oil to European consuming centers



Effect of U. S. oil import tax on shipments of petroleum and products to and from principal oil producing and consuming countries of the world.

from South America, Russia and Roumania. The increased and sustained motor fuel imports into the United States till the end of 1931 were responsible for correspondingly decreasing imports of crude oil, thus indicating an apparent trend of American oil companies with South American production to build refineries outside of the United States, and to import only refined products, thereby effecting large savings in the volume of shipments. It is accordingly probable that if the import tax on refined products shipped into the United States had not been imposed, a further extension of refinery construction in the Caribbean would nevertheless have taken place.

The effect of one year of import taxes on the American oil industry is still indefinite, primarily because, as indicated on the accompanying chart, the East Texas field dominated entirely the economic position of the oil industry since the first half of 1931, and that field was particularly responsible for the complete collapse of prices during the first half of 1933. The uncertainty of last year's development is especially due to large exports of both crude oil and refinery gasoline from the East Texas field at unusually low quotations, exports which would not have taken place under more normal circumstances. During the second half of 1932 and first half of 1933 the total exports averaged 46,000,000 bbl. each six months, of which 14,500,000 bbl. were motor fuel, 4,714,000 bbl. were kerosene and 3,440,000 bbl. were lubricants, all valued at $87,350,000. In the same period of time total imports averaged 21,600,000 bbl. each six months, of which but 300,000 bbl. were motor fuel, imported as technical naphthas prior to its classification with gasolines, all valued at $14,-050,000. Crude oil imports in the past year averaged 14,350,000 bbl. each six months, indicating that Eastern refineries processed 78,800 bbl. of foreign crude oil per day, 40,200 bbl. per day less than during the second half of 1931, 91,200 bbl. per day less than during the first half of 1930, and 161,200 bbl. per day less than during the first half of 1929. It is apparent, therefore, that the decline in runs to stills of foreign crude oil in the United States refineries was not greatly affected by the import tax, but rather continued its former trend downward, which was further accelerated by the decline in domestic consumption.

Motor fuel exports began declining in the second half of 1930, dropping from 34,800,000 bbl. in the first half of 1930 to 21,900,000 bbl. in the second half of 1931, at which rate they continued into the first half of 1932, apparently pending further major refinery construction in Europe. In the following two post-tariff six-month periods, second half of 1932 and first half of 1933, the motor fuel exports declined to an average of 14,500,000 bbl. in each, a decline of 7,100,000 bbl. from the average for the preceding two, pre-tariff, periods. Imports of motor fuel simultaneously declined an exactly equal volume of about 7,000,000 bbl. in each six-month period, suggesting a process of simple substitution and not of major readjustment. Calculated on the basis of an average 44 percent motor fuel recovery in the United States the domestic oil industry apparently lost a refining capacity of 16,100,000 bbl. in each six-month period, or 88,500 bbl. per day, but a similar volume of motor fuel imports having been withdrawn from United States consuming centers, for direct shipment from the Caribbean refineries to European and other markets, there was no actual loss whatsoever to the domestic refining plants, the process being, as already indicated, one of substitution and not of radical readjustment.

The net barrel change in export-import shipments, due to the import tax, from the average of two six-month periods of 1931 to the average of the second half of 1932 and the first half of 1933, the two statistically comparable periods, has been:—

1. Imports of crude oil declined 9,250,000 bbl., imports of motor fuel declined 6,500,000 bbl. and the imports of all other refined products declined 5,700,000 bbl.; or a total in terms of crude oil (44 percent motor fuel crude oil ratio for U. S. comparison) of 29,750,000 bbl., or 163,500 bbl. per day.
2. Exports of crude oil increased 1,800,000 bbl., exports of motor fuel declined 8,350,-000 bbl. and the exports of all other refined products declined 5,750,000 bbl.; or a net decline in terms of crude oil (44 percent motor fuel crude oil ratio) of 22,950,000 bbl., or 126,000 bbl. per day.

Therefore the apparent net effect of the import tax has been the use in the markets of United States of 6,800,000 bbl. of crude oil in each six-month period, or 37,500 bbl. per day, produced within the country, and not imported, which would have been the case if the import tax had not been in force. Taking into consideration, however, exports due entirely to the availability of distress crude oil and gasoline from the East Texas field the net favorable barrel balance for domestic producers is probably reduced to almost nil. Moreover, exports of East Texas products were actually made at a loss to domestic producers and refiners. In fact, the average export prices for motor fuel at points of shipment declined from 6.52 cents per gallon during the first half of 1931 to about 4.50 cents per gallon during the first half of 1933, and for crude oil they dropped from 90 to 65 cents per barrel in the same period of time, while the export products obtained from the East Texas field brought considerably less.

The effect of one year of import taxes on petroleum and its products has been, therefore, indecisive. As indicated on the accompanying chart the positive true post-tariff barrel balance remained virtually unchanged from 1931, particularly if distress sales of East Texas products are eliminated. The positive dollar post-tariff balance, however, declined radically from 1931, when the developments in the East Texas field upset the domestic price situation. The anticipated higher prices for crude oil and its products in the United States, due to Federal intervention, will improve considerably the dollar balance of petroleum foreign trade, but will reduce the barrel balance, because distress products will be eliminated, and also because of the resulting stronger competition from other oil producing and refining countries. If domestic crude oil and motor fuel quotations are fixed by the Code of Fair Competition considerably above the current world prices, then most of the American export trade will be lost to other countries unless cooperative agreements are made.

The effect of the American import tax on the countries which were exporting petroleum products into United States prior to June 21, 1932, has been of two varieties:—(1) The exporting countries with well developed major refining facilities, like Venezuela and Mexico, were very slightly affected by the American import taxes, their shipments being simply re-routed to other markets, such change being relatively easily accomplished due to great flexibility of large international oil concerns, such as Royal Dutch Shell and the Standard Oil Companies, though in the latter case a change in ownership of one major subsidiary was involved; (2) exporting countries without modern refining facilities, like Colombia and other smaller producers, were visibly affected by American import taxes, and their exports of crude oil were temporarily curtailed, though again, possibly, this was due primarily to the competition of the cheap East Texas crude oil.

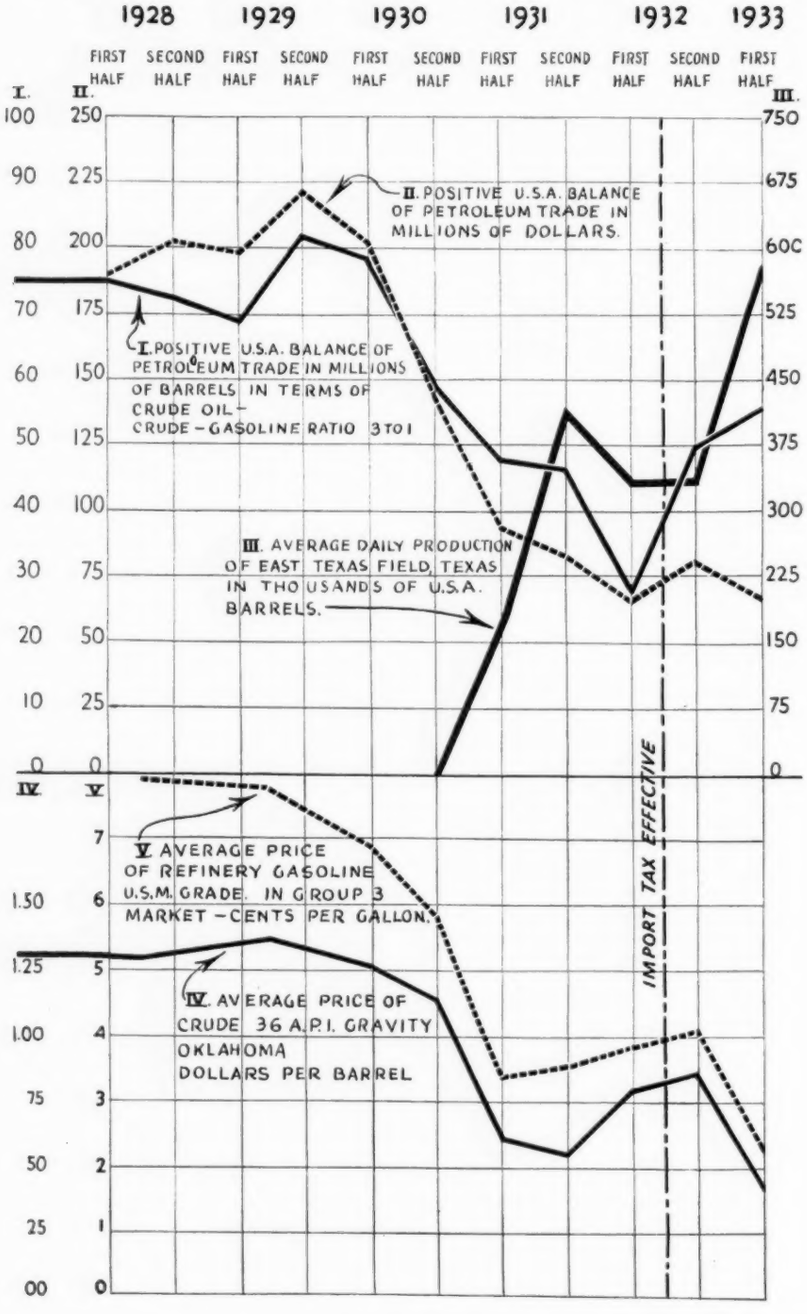
A more interesting aspect of the situation was the artificial restriction on the flow of foreign products to the disorganized petroleum markets of the United States, with the result that foreign products substituting for former American exports in the world's markets escaped the full force of the East Texas economic debacle, while American domestic crude oil and refined products were being dumped on the markets at ruinous prices.

The most important and lasting effects of the American import tax on petroleum

products have been the realignment of several major companies, and new refinery construction in United States and elsewhere. The more important developments include:—

1. The acquisition of the Pan American Foreign Corporation, a subsidiary of the Standard Oil Company of Indiana, by the Standard Oil Company of New Jersey in the middle of 1932 for a reported consideration of $146,000,000. The Pan American Foreign Corporation owned large producing and refining subsidiaries in Venezuela (Lago Petroleum Corporation and Lago Oil and Transport Company, Ltd.) and in Mexico (Mexican Petroleum Company and Huasteca Petroleum Company); and even though it had extensive foreign marketing facilities in Brazil (The Caloric Company), in Argentina and Uruguay (Tide Water Oil Export Corporation), in England (The Ebano Oil Company, Ltd.), in Germany (Ebano Asphalt Werke A.G. and Ebano Asphalt m.b.H.) and in France, the greater part of its production was shipped into the United States. The Standard Oil Company of New Jersey with extensive foreign markets and with additional marketing outlets acquired from the Pan American, was in excellent position for distribution of the production purchased from the Indiana subsidiary. The properties acquired by the Standard Oil Company of New Jersey, however, still supplied that company more petroleum products than it could market, and hence the Jersey gradually discontinued its former foreign purchases from various countries, and has been actively sponsoring additional marketing agreements and outlets.
2. Reported contemplation of a merger of the Far Eastern distributing interests of the Standard Oil Company of New Jersey and of the Socony-Vacuum Corporation, with possibilities of further direct cooperation of these two companies in foreign markets. While this merger is not directly related to the American import tax, it is probably suggested in part by the desire of the Standard Oil Company of New Jersey to find markets for its greatly increased producing and refining capacity since acquisition of the Pan American foreign properties.
3. The Standard Oil Company of Indiana after disposing of its foreign properties to the Standard Oil Company of New Jersey found itself without sufficient domestic refining capacity, formerly supplied by Aruba and Tampico refineries. It has completed construction of a 20,000-bbl. per day cracking unit at Whiting, Indiana, and has begun construction of a $3,000,000 similar unit at Texas City. Construction of this refinery necessitated an extension of the trunk pipelines of the company to the new refinery site on the Texas Gulf Coast. In this case, therefore, the import tax was directly responsible for new construction projects in United States.
4. The Lobitos Oilfields, Ltd., a British Oil Company with large properties in Peru, recently producing about 2,500,000 bbl. of crude oil per year, is planning to erect shortly a refinery at Ellsmere Port, on the Manchester Ship Canal, in England, as a result of losing its selling contracts with the Canadian subsidiary of the Standard Oil Company of New Jersey, the International Petroleum Company, Ltd., which is now being supplied by the recently acquired new subsidiary of the Jersey company, the Pan American Foreign Corporation.

Domestic price fluctuations and mounting production in East Texas in relation to U. S. balance of oil export trade in value and volume.


1928
1929
1930
1931
1932
1933
FIRST HALF
SECOND HALF
I.
II.
III.
IV.
V.
II. POSITIVE U.S.A. BALANCE OF PETROLEUM TRADE IN MILLIONS OF DOLLARS.
I. POSITIVE U.S.A. BALANCE OF PETROLEUM TRADE IN MILLIONS OF BARRELS IN TERMS OF CRUDE OIL—CRUDE-GASOLINE RATIO 3 TO 1
III. AVERAGE DAILY PRODUCTION OF EAST TEXAS FIELD, TEXAS IN THOUSANDS OF U.S.A. BARRELS.
V. AVERAGE PRICE OF REFINERY GASOLINE U.S.M. GRADE. IN GROUP 3 MARKET—CENTS PER GALLON.
IV. AVERAGE PRICE OF CRUDE 36 A.P.I. GRAVITY OKLAHOMA DOLLARS PER BARREL
IMPORT TAX EFFECTIVE

Additional and less evident changes within international oil companies undoubtedly occurred, and will again occur in the future, caused wholly or at least in part by the American import taxes. Thus Canada witnessed construction of additional refineries to substitute for the motor fuel formerly imported from United States, where it was refined from South and Central American crude oils; individual companies with California subsidiaries shipped motor fuel from the Pacific Coast refineries to substitute temporarily for motor fuel formerly derived from Caribbean refineries; and certain American companies distributing petroleum products in Europe are at this time planning construction of refineries in Europe to handle their crude produced outside of United States, such development, however, being delayed by political uncertainties. In the last class is the

Gulf Oil Company which through its subsidiary, the Venezuela Gulf Oil Company, produces about 21,000,000 bbl. per year in Venezuela, but does not own refineries outside of the United States, though marketing products in England, France, Belgium, Germany, Holland and Scandinavian countries.

The United States Government collected in import taxes on crude oil and its products about $9,300,000 during the first year the taxes were in effect; but the collections will probably decrease to around $6,300,000 per year due to recent regulations permitting imports in bond of fuel and bunker oil to be used by vessels engaged in foreign commerce.

In summing up it will be observed that the petroleum import taxes did not improve either the general statistical position of the American oil industry, or its prices, due largely to the flood of crude oil from the East Texas field, which alone produced up to 1,200,000 bbl. per day, as compared with imports of all petroleum products of but 122,000 bbl. per day during the second half of 1932 and first half of 1933. An additional important factor contributing to the ineffectiveness of the import taxes has been the great flexibility of international flow of petroleum products, necessarily achieved by major international oil companies because of ever changing local political orientations. Thus the imposition of American import taxes resulted in amazingly simple rerouting, and was not a complicated readjustment. Moreover, the flexibility of major international oil concerns assured in fact, an uninterrupted and undiminished flow of petroleum products from producing countries, like Venezuela, Mexico and Colombia, with the temporary exception of crude oil shipments, which, regardless of the American import taxes, would have been affected by the dumping of East Texas crude on international markets. To date the beneficial and constructive realignments and consolidations of major oil companies engaged in foreign trade, thus eliminating competition and duplication, and the building of few strategically located refining plants, have been the only notable sequel of the American "tariff."

The continuation of the petroleum import taxes in United States, and further limitations of imports to 1932–33 levels under the Code of Fair Competition of the NIRA, however, appears as definitely assured, the "tariff" being a definite policy of a large section of the American domestic oil industry, while the great flexibility of major oil companies with foreign production makes it unnecessary for them to oppose the import taxes.

All statistics presented herewith have been based exclusively on data furnished by the United States Bureau of Mines and the Bureau of Foreign and Domestic Commerce.

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Franklin Sees Need for Increased Oil Tariff

By Wirt Franklin

VALUABLE as the excise taxes on imports of petroleum and its products have been since they went into effect June 21, 1932, any important price advantages which may be gained as a result of the operations of the Petroleum Code under the National Industrial Recovery Act would make it necessary to increase these taxes if the whole purpose of that Code is not to be destroyed, unless the President exercises his authority to limit such imports.

The effect of the excise taxes has been especially felt in the reduction of the importation of refined products during the eleven months of its existence. These importations during the last six months of 1932 fell to 7,481,000 bbl. (of which 575,000 bbl. was motor fuel) as compared to 21,741,000 bbl. imported during the last six months of 1931. Comparison of the two halves of 1932 is even more illuminating. During the first six months in that year, importations of refined products amounted to 29,757,000 bbl. During the first five months of the present year, the latest data which have been compiled by the Bureau of Mines, importations of refined petroleum products have amounted to 6,303,000 bbl. In May of the present year a record low mark was reached, the total of these imports being only 653,000 bbl. This represents a decrease of nearly 80 percent of the total quantity of these imports. It also represents an increase in the available market for products refined from our own petroleum.

The importations of crude petroleum during the last half of 1932, when the ½ cent excise tax was in effect, fell to 12,444,000 bbl. as compared with 32,244,000 bbl. for the first six months in 1932. During the five months for which figures are available in 1933, 14,119,000 bbl. of crude petroleum have been imported.

With the price of American petroleum and its products below production costs as they have been frequently during this period, the industry has not realized the full possible effect of these excise taxes. If the price begins to rise under the operation of the Petroleum Code and the Industrial Recovery Act, the importance of this tax will be more generally appreciated. When the price of crude reaches 75 cents, it will again become profitable for importers to bring foreign oil into the American market regardless of the excise tax, while each additional increase in the price will make importations still more profitable. While one section of the Industrial Recovery Act makes a definite provision for the imposition of special fees on articles imported in such substantial quantities or increasing ratio to domestic production as to endanger the maintenance of any code or agreement under this title, and provides a limit to the quantity of such imports, with a possible invocation of a licensing system for importers, these provisions necessarily can be effective only during the life of the Industrial Recovery Act. An amendment to the Revenue Act or a special measure passed by Congress definitely fixing an adequate tariff or excise tax which would protect the American market from an invasion of foreign oil would be much more practicable and reassuring. Such an act of Congress would have a greater degree of permanence than any orders issued for the limited life of the National Industrial Recovery Act.

Whether by Presidential order or by positive legislation by Congress, it is quite evident that steps must be taken to protect the American petroleum market from a new collapse in price due to an increase in oil importations. If this is not done, then much of the value of the steps now being taken to restore the industry will be absolutely nullified. The effect of this upon all industry throughout the nation

would soon be felt since it would involve destruction of the purchasing power of many millions of people in the oil-producing states. This would reverse the present currents which are moving in the direction of a larger and more widespread prosperity or would at least retard that movement which involves higher wages as well as possible profits for the oil industry.

One result of the low prices for petroleum and its products now prevailing in this country has been the increase in exportations. During the last six months of 1932, exportations of crude petroleum totaled 13,214,000 bbl. and exportations of refined products totaled 32,172,000 bbl. In the first six months of that year our crude oil exports amounted to 14,179,000 bbl. and our refined products exports 43,523,000 bbl. During the first five months of 1933, we exported 11,577,000 bbl. of crude oil and 28,445,000 bbl. of refined products. The demoralization of the American industry is largely responsible for this large volume of exports since only through the sale of oil below production costs would it have been possible for some of this petroleum to enter into certain markets where it came into direct competition with petroleum products produced by cheap labor, by peon labor, or by forced labor.

The general recognition of the vital importance of protecting producers in all the branches of American industry from ruinous competition with cheap foreign products, the new stress laid upon maintenance of high wage scales and short labor weeks and the projected correlation of all business with such adjustment of imports as would prevent interference with national industrial planning, encourages many to believe that before the expiration of the National Industrial Recovery Act and the operation of codes established thereunder, some session of Congress will write into the permanent body of law, the legislation necessary to continue the protection so necessary to American industry.

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Oil Industry Assailed by Unjust Taxation

Motor Fuel and Transport Penalized in Effort to Aid Competing Products and Services—Burden Laid on Oil Users—Recent Developments in Great Britain.

By Major H. E. Crawford

Member of Royal Commission on Transport

THE utility of oil as a fuel is proved by the rapid development of its use. Its advantages have been universally recognized. In the United States of America, a population of over 120,000,000 possesses one motor-car to every seven persons. In Great Britain and many continental countries, though this figure has not been reached, the use of the motor car by ever increasing numbers of the population has been a feature of their social life in the last two decades.

Similarly, the industrialist has been quick to see the advantages of oil fuel for the provision of heat and power for certain purposes, while at the same time he has realized, and taken full advantage of, the convenience and adaptability of motor transport. All those in a position to estimate the comparative advantages to be derived from the use of liquid fuel, as compared with any other, have made their opinion quite clear.

But a very different story has to be told when we turn from the attitude of the ordinary citizen in every country and consider the actions of governments. It is said that history repeats itself; it is quite certain that governments seem constitutionally incapable of profiting by the mistakes of their predecessors. They nearly always lag a generation behind the times.

When, more than a hundred years ago, the invention of the steam-engine brought the possibility of vastly more rapid travel, the same kind of folly that is being perpetuated today was exercised in the case of the railways. In Great Britain, where the new means of locomotion originated, every obstacle was put in the way. Interested parties sought to stop them altogether. "What," it was demanded, "is to become of the money invested in stage coaches?" And the cry was supported by leading articles in the foremost newspapers of the day.

Parliament took a hand in the game and the railways were hedged about with endless legislative restrictions. The failure of the legislators to realize the significance of the change that was taking place, combined to handicap the pioneers and to retard progress.

Today, governments are repeating this folly. Just as formerly it was sought to protect older forms of transport against the competition of the railways then in their infancy, so now the railways, in their turn largely out-of-date, are favored as against a newer transport agency which is being eagerly adopted by those it seeks to serve. The reasons advanced are those heard a hundred years ago. Progress never halts, and ever takes new shapes; reaction remains the same and is what it always was.

The burdens and handicaps which have been placed, and are being placed, upon motor-transport and the use of liquid fuel generally are of two kinds and spring from two causes. They may be summarized by the two words, restriction and taxation. The two causes are the interested motives which seek to invoke the aid of governments on behalf of one competitor against another, and ignorance of what constitutes sound methods of taxation.

As to the restrictive measures imposed (which are being applied both in the United States and in the United Kingdom) it should be obvious that in a world suffering from industrial depression no greater folly can be committed than the deliberate setting back of the clock, either in transport or industry, by placing restrictions on progress. It is always bad finance to use the weapon of taxation for other than financial reasons; it is doubly bad when the motive is to injure one class of tax-

payer for the benefit of any other class.

The increases in the taxation of goods motor vehicles imposed in this year's British Budget have no relation at all to what was the accepted rule—that motor taxation should be equivalent to a fair share of the cost of road construction and maintenance. The new taxes are simply penal.

Thus the new motor vehicles scheduled to take effect on 1st January, 1934, increase the taxes on petrol drawn goods vehicles 9/10 tons weight from £48 yearly to £170 ($233.28 to $826.20). On steam vehicles, however, the rate is only £150 ($739.00). Similarly heavy oil vehicles are charged £225 ($1093.50) while coal gas vehicles pay $205 ($996.30). Similar discrepancies appear in the rates on lighter vehicles which in all instances are higher where petrol or oil is used than when steam or coal gas is employed.

In placing a duty on fuel oil of 1d per gallon (approximately 80 cents per U. S. bbl.) the Chancellor of the Exchequer estimated that it would produce a revenue of £2,300,000 ($11,178,000). Protests against the application of the tax to the fuel supply of coastal shipping has caused that trade to be excepted, reducing the estimate to £2,100,000 ($10,206,000). It is essentially a tax on industry, placing a load on British firms that must necessarily lessen their ability to compete, while at the same time it is of very doubtful value in stimulating the consumption of coal. The British metal trades, for example, use annually 9,000,000 tons of coal and 275,000 tons of oil. Coal is favored as the cheaper fuel; oil is used where the particular requirements of industry make it necessary. If, by adding to the cost of certain metal manufactures through the tax on oil, the makers of these products lose foreign orders the result is a direct reduction in the demand for coal and thus the tax may defeat the very purpose of its framers.

That its purpose is to assist coal at the expense of oil is indicated by the fact that Mr. Neville Chamberlain, in announcing the new tax this year told the House of Commons in so many words that he had "received representations from the coal and electricity industries and from the railways."

But, in penalizing motor transport and oil, it is not merely these that suffer. After all, transport and fuel are a means and not an end.

On the other hand, if taxation of the oil industry is imposed merely from the point of view of revenue production it is equally indefensible. It is but a truism to say that taxation of a raw material is injurious to industry. A direct tax is sound if it is imposed on profits after they are realized because then it corresponds to ability to pay. An indirect tax always contains an element of unfairness. The more it is confined to one particular class of taxpayer, the more unfair it becomes.

The tax on motor transport is a differential tax in so far as it is imposed on private persons.

There is more than a little basis for the belief that one of the reasons why public officials have so assiduously piled tax after tax upon the motor and oil industries is because they have been not only prolific in their yield of revenue, but, heretofore at least, unresisting in opposing the addition of ever increasing burdens.

British Petrol Tax Revenue

Year	Petrol Duties
1931–32	£28,603,000
1932–33	34,648,000

For the year ending Nov. 30, 1932 motor vehicle duties in Great Britain amounted to $28,396,000.

The tax on petroleum in the United Kingdom is 8d. per gallon. In other European countries it ranges from a minimum equivalent to 4½d. per gallon in Norway to a maximum equivalent to nearly 2/– per gallon in Poland. The taxation on heavy hydrocarbon oils is to be added to this. In the United States the rate varies from three to 12 cents per gallon and the total yield from motor taxes is about $1,000,000,000, or approximately 10 percent of all taxation.

This immense burden is typical of what is going on all over the world where a combination of pressure from vested interests and harassed governments leads to the imposition of taxes, easy to collect and fruitful in yield. What is overlooked is the remoter effects of the taxes in the handicap to progress and the difficulties imposed on industry and transport, which have found in oil fuel a product which nature yields in abundance, and of a quality that enables it to be adapted to an endless variety of uses.

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Six Percent Increase in British Oil Imports

AN APPRECIABLE advance in the volume of petroleum products imported into Great Britain and Northern Ireland is revealed in official statistics for the first six months of 1933. Total inward shipments, including crude, amounted to 34,691,584 bbl., compared with 32,711,305 bbl. in the corresponding period of the previous year, the increase being equal to just over six percent. Comparison of the 1932 figures with those for 1931 shows a small reduction in the total imported during the January-June period, 1932. The fresh upward movement during the current year may be attributed either to a definite improvement in demand or to the relatively remunerative standing of Great Britain as a selling market.

There has undoubtedly been a more optimistic view of British trade prospects since the beginning of the current year, and larger takings of petroleum products would be a natural corollary of business revival. There is, however, little evidence of a distinct upward turn in the internal demand for petroleum products, and the trade improvement factor, if it has had any influence on the volume of imports, can have done so only because importing interests have anticipated a better demand. Prices have probably been a more important factor, for it will be recalled that British motor fuel prices were comparatively high during the greater part of the period under review, the standard price of number one motor spirit being cut from 1s. 7½d. to 1s. 5d. only towards the end of the half-year. Against the 1s. 7½d. price prevailing this year, the price during the first six months of 1932 was only 1s. 4½d. The import figures for the half-year indicate that, as was suggested when the cut in petrol prices was made, the high price attracted larger quantities of that product to the British market.

This suggestion is supported by details of imports.

Petroleum and Products Imported into Great Britain

	Six months to June 1933 (Barrels)	Six months to June 1932 (Barrels)
Lamp Oil	2,544,619	3,395,162
Motor Spirit	15,593,520	13,770,812
Other Spirit	217,344	251,197
Lubricants	1,383,789	1,497,248
Gas Oil	1,622,261	1,657,297
Fuel Oil	7,821,878	7,158,490
Other Oil	4,035	5,524
Total Products	29,187,446	27,735,730
Crude	5,504,138	4,975,575
Total Crude and Products	34,691,584	32,711,305

Increasing from 13,770,812 bbl. in 1932 to 15,593,520 bbl. this year, motor spirit accounted for the whole of the advance in the total of imported products. This

points to its price as a major factor in the larger imports this year.

Possibly, too, the termination in March, 1932 of the formal agreement between the "national" companies distributing in Britain and R.O.P. had an influence on the amount of motor spirit brought in. Part of the marketing arrangement with the Russians provided for the cracking of Russian kerosene, carried on largely at the Medway Oil and Storage Company's refinery. This development would also explain at least part of the decline from 3,395,162 bbl. to 2,544,619 bbl. in imports of lamp oil against the first half of 1932.

The slight decline in imports of gas oil is conceivably due to the disturbance to the market caused by the embargo on Russian products which became effective on April 26 and remained in force until the end of the half-year. It will be recalled that a very big advance in Russian exports of gas oil to Great Britain occurred in 1932. Changes in sources of supply following the ban on Russian goods would probably account for a small temporary decline in imports of gas oil this year.

Import Rate Increases in July

BRITISH OIL IMPORT trade during July shows the same aggregate trend against 1932 as in the first six months of the year. In fact, the July increase in total imports from 5,485,265 bbl. to 6,518,217 bbl. is equal to nearly 19 percent on last year's figure, compared with an advance of only 6 percent during the first half of 1933.

Variations in individual products, however, differ materially in July from those shown in the figures for the half-year. Although the greater part of the month's increase was due to a further expansion in imports of motor spirit, larger inward shipments of kerosene, gas oil and lubricating oil all contributed to the advance in the total. On the other hand, fuel oil, of which more was imported during the June half-year, showed a moderate decline in July.

Petroleum and Products Imported into Great Britain

	July 1933 (Barrels)	July 1932 (Barrels)
Lamp Oil	486,636	265,534
Motor Spirit	3,179,385	2,395,423
Other Spirit	31,213	48,777
Lubricating Oil	261,240	162,618
Gas Oil	258,707	122,340
Fuel Oil	1,081,639	1,229,437
Other Oil	331	8,072
Total Products	5,299,151	4,232,201
Crude	1,219,066	1,253,064
Total Crude and Products	6,518,217	5,485,265

Lifting of the embargo on Russian products at the beginning of July was responsible for some of the changes against last year. It was estimated when the embargo was imposed that Russian Oil Products held stocks in Great Britain equivalent to about three months' supplies, and the statement issued at the time by R.O.P. implied that these would be drawn upon for current business requirements. Some re-stocking by the Russian organization would therefore appear to have been necessary when trading was resumed. The time taken in adjusting shipping arrangements after the lifting of the embargo doubtless postponed large arrivals of Russian oil in Britain until well into July, and figures for later months may therefore be influenced by the renewal of Russian shipments to Britain.

July receipts of crude oil, at 1,219,066 bbl., were rather less than those for the corresponding month of last year, but the total for the seven months to the end of July, at 6,723,204 bbl., is approximately eight percent higher than that for the same period in 1932. Of the seven months' imports, 3,785,465 bbl. was received from Persia against 3,900,100 bbl. in 1932, showing that for the moment the decline in the volume of Persian crude brought to Britain for refining has practically ceased after persisting for a number of years.

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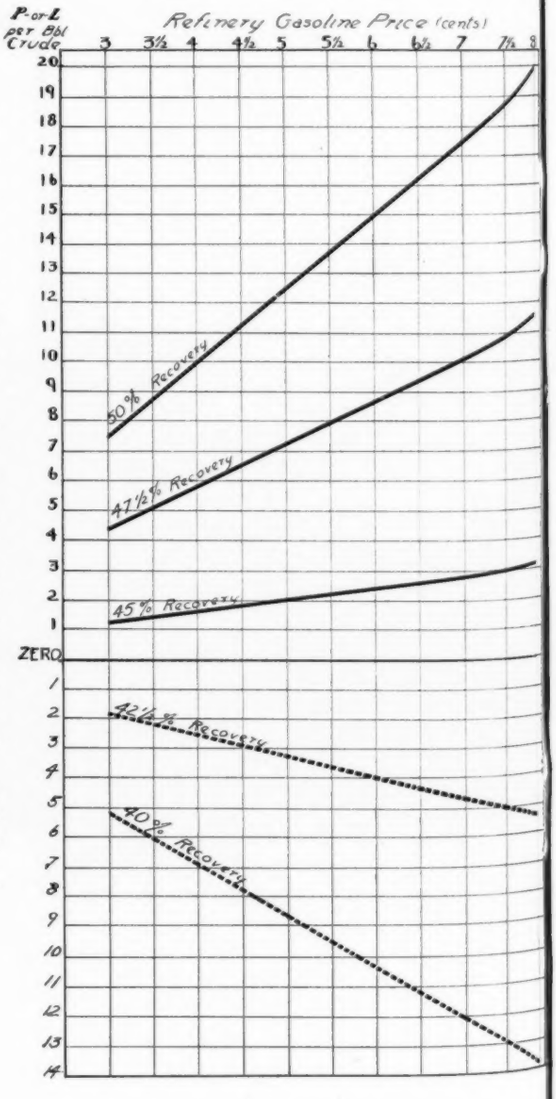
Premium for Refining Efficiency

UNDER the fixed ratio between the tank car price of 60-64 octane gasoline in Group 3 market and 36-36.9 A. P. I. gravity mid-continent crude, recovery below approximately 44 percent will result in a loss on the refining process which will increase as the price of gasoline advances; while recovery above approximately 44 percent will result in a profit on operation from the sale of gasoline alone that will increase as the price of gasoline advances. The vital importance of modern equipment and a plant that will yield a high recovery of gasoline is at once apparent from the accompanying figures and chart.

With the ratio between the base price of a gallon of gasoline and the base price of a barrel of crude established as 18.5 in the oil code, which also gives the President power to fix the base price of gasoline, the actual working of this provision and its effect on the return obtained by different degrees of refining efficiency becomes of paramount importance. If the base price of gasoline is fixed at 3 cents per gallon, whether by the President or as the result of economic forces, the refiner will have to pay 55.5 cents per barrel of crude. If his recovery is 40 percent, he will have 16.8 gal. of gasoline which may be sold at 3 cents per gallon bringing in 50.4 cents for the entire gasoline recovery from the barrel of crude, or 5.1 cents less than enough to pay for the raw material alone. This deficit will have to be made up from the sale of other products obtained in the manufacture of gasoline. As the base price of gasoline advances the loss on the gasoline increases, being 6.8 cents at 4 cents per gallon; 8.5 cents at 5 cents per gallon; 10.2 cents at 6 cents per gallon and 11.9 cents at 7 cents per gallon.

In contrast, the refiner who recovers 50 percent gasoline, makes an operating profit (gross profit) of 7.5 cents on the gasoline alone when the price is 3 cents. As the price advances, a 50 percent recovery yields a higher and higher gross profit till at a base price of 7 cents per gallon the refiner obtains a gross profit of 17.5 cents on the recovery from a single barrel of crude, from the sale of gasoline alone.

Chart contrasting the gross profit and loss on the sale of gasoline alone in the case of various percentages of gasoline recovery under the oil code.



Science of Automatic Control in Refining

The Fourth of a Series of Articles in Which C. E. Mason Continues an Analysis of a Temperature Control Problem Considered in Part III Published in the Preceding Issue.

RECORD No. 7, Fig. IX is another example of hand control adjustments showing results obtained with ideal manual control by an operator familiar with process reactions, illustrating the effects which certain valve adjustments will produce in the process temperature.

At the beginning of Record No. 7 we have started with the temperature deviated to 120 deg. It would be possible to make one adjustment which would eventually bring the temperature very close to the control point but (due to the absence of unfavorable lags in this particular control problem) it will be possible to make an excessive change and correct it before the control point is reached.

At the beginning of Record No. 7 there were 10 lbs. per minute of hot water and 10 lbs. per minute of cold water flowing. From equation (5), Part III

$$T_b = 60\frac{(W_1+3W_2)}{W_1+W_2},$$

or curve (2), Fig. VII, this shows a temperature balance of 120 deg. F.

From equation (6), Part III

$$W_2 = W_1\frac{(60-T_b)}{T_b-180}$$

we see that reducing the hot water flow to 5 lbs. per minute would give a temperature balance of 100 deg. The first correction, however, at 12:05 o'clock was to reduce the hot water to 1.5 lbs. per minute. If allowed to continue this flow would have balanced the temperature at approximately 76 deg.

The correction at 12:07 o'clock was to increase the amount of hot water to 4 lbs. per minute or a balance temperature of approximately 95 deg. The final correction at 12:12 o'clock was to change the hot water flow to 5 lbs. per minute or a balance temperature of 100 deg. F. The effect is shown by the three curves and their dotted extensions.

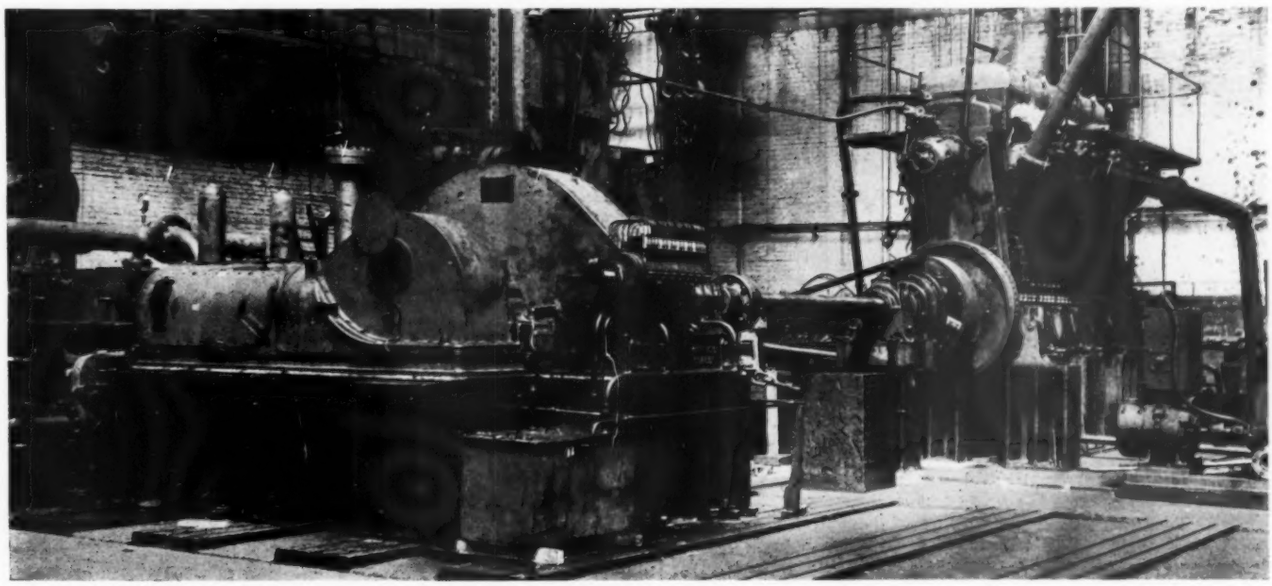
The resulting curve possesses the same general characteristics as the curve produced by having made one correct adjustment but the balance was obtained in less time. The curve of balance for one correct adjustment is shown for sake of comparison. Shortening the time of balance was made possible only by the fact that there are no unfavorable lags in this particular process.

If unfavorable lags had been present in this process, these excessive changes would have stored up the excessive cold water in the unfavorable capacity which would have been dissipated later to cause the temperature to run below 100 deg. F. Thus in the presence of unfavorable lags the temperature must be returned on a slower curve to reduce the magnitude of the excess and prevent overrunning the temperature. Returning the temperature on the Natural Temperature Balance curve would mean that there would be no excesses. The equation of the Natural Temperature Balance curve is reproduced from Part III

$$T_t = T_b - \left[\frac{(T_b-T_o)}{10} \times \text{Antilog}\left(1-.4343\,\frac{Q}{C}\right)\right]$$

In which:

T_o = Original balanced temperature.
T_b = Final balanced temperature (Equ. 5)
T_t = Actual temperature at any time period after the change.
Q = Total pounds of water flowing (hot and cold) since the change.
C = Capacity of vessel in pounds of water.



Diesel engine, manufactured by Harland Wolff, Ltd., on the day of the official test for officers of the Iraq Petroleum Company; the engine is driving a Worthington-Simpson pump, both designed for use on the Iraq pipeline.

It would be most unusual for a hand operator to have the advantage of two measured flows representing supply and demand. Even if such measurements were given, it is unlikely that he would take this exact but more complicated way of analyzing the requirements of manual adjustments. He would more likely analyze the results produced by his estimated adjustments.

Record No. 8 starts with a temperature balance of 80 deg. and illustrates the proper analysis of a good hand operator. At 12:10 o'clock an estimated increase was made in the flow of hot water. If at 12:15 o'clock the record indicated a probable balance at 100 deg. F., the original flow setting would be allowed to remain. If by good fortune, an observation at the end of each succeeding 5 minutes still indicated a desirable temperature balance no change would ever be made in the hot water flow. The record (lower curve of Record No. 8) indicates that about 25 minutes was required, in this particular problem, to obtain a final temperature balance of 100 deg. The dots on the record show at what times the analyses were made.

If, however, instead of having made a correct adjustment the first time, it is discovered at 12:15 o'clock that the resulting temperature balance would be beyond 100 deg. (upper curve, Record No. 8), it is evident that the flow of hot water must be reduced. The dotted extension shows the probable balance. If the flow was reduced at 12:15, by the amount shown on the record the final temperature balance would be 100 deg.

If, in another case, the operator could not be positive of the final temperature balance at the end of the first 5 minutes, the original flow setting may remain for another time period or until the record indicates the final balance temperature more definitely. Record No. 9 illustrates this condition and the first change was made at the end of 10 minutes. The record of the correct adjustment is reproduced for sake of comparison.

In the same way that the operator produced Records No. 8 and No. 9 by making observations every 5 minutes, he also may have made analyses or changes after a certain number of *degrees of temperature change*. These degree change corrections should be smaller as the control point is reached. Record No. 10 shows an analysis based on a degree change as producing practically the same result as obtained by Record No. 8 and the dots on the curves represent the times at which observations or corrections were made. Record No. 10 represents the same conditions as Record No. 8. Record No. 11 presents the degree change analysis for the same conditions as produced Record No. 9.

If a hand operator selects some arbitrary time period and finds that he often experiences temperature changes greater than should be allowed for best results, he reduces the time between observations and in the opposite case he may lengthen the time between observations. It is more probable that he will judge his time periods by the last observation or the magnitude of the last correction. Thus he is guided by both time and degrees deviation or by the *rate of temperature change* as indicated by his last observations or previous experiences. He is unconsciously observing the rate of temperature change and the deviation at the time of observation and making adjustments accordingly. His good judgment is only a result of experiences with the particular process.

It is evident from any of these analyses that a good hand operator will, upon discovering a deviation from the desired control point, attempt to hold the temperature on a curve which will approach the desired balance temperature at *a rate which will approach zero rate of change* as the balanced temperature is reached.

For a certain deviation he may close the valve a small amount for one rate of change or he may open it a small amount for another rate of change and for still another rate of change he may make no corrections at all.

In other words, these analyses show that if the temperature is away from the control point it does by no means indicate the necessity of a change in flow and it does not indicate the magnitude or direction of such a change. The necessity for such changes are indicated entirely by the rate and direction of temperature change at certain deviations from the control point.

Considering these facts it is perfectly obvious that any mechanical control device which opens the controlled valve at a certain adjustable rate when the temperature deviates on one side of the control point and closes it at the same rate when the temperature deviates on the other side, must always be supplying an excess by the time the temperature is returned to the control point. This type of control mechanism is sometimes called "Step by Step Control" or "Floating Control." In order that the valve may not supply an excess, it should stop opening or closing and the flow remain stationary when the rate of temperature change becomes tangent to the natural temperature balance curve of the process. If the temperature is returned rapidly this point of tangency would be at a greater deviation from the control point and the slower the temperature is returned the nearer the point of tangency comes to the control point. Since all increases or decreases are excessive after these points are reached, it is very necessary—in the presence of unfavorable lags—to make these correction rates very slow to prevent continuous and serious cycling with this type of control mechanism. We will illustrate the necessity of this adjustment when analyzing the problem involving transfer lag.

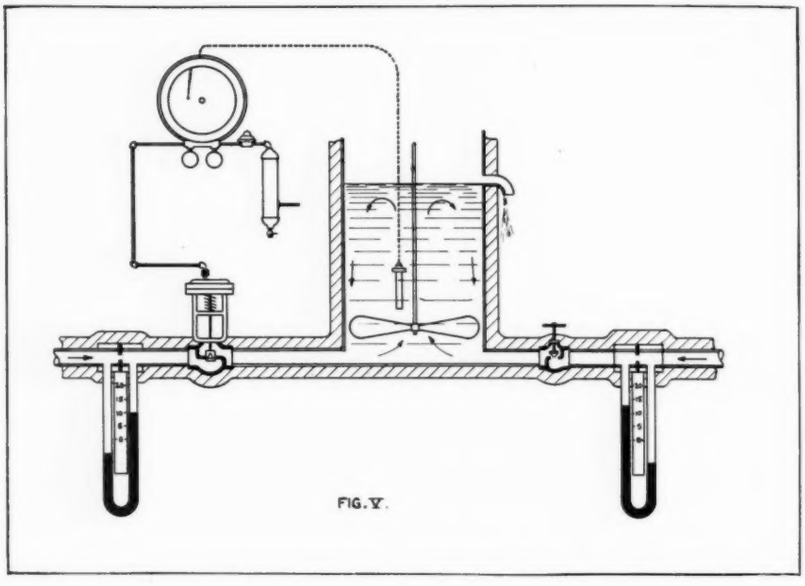
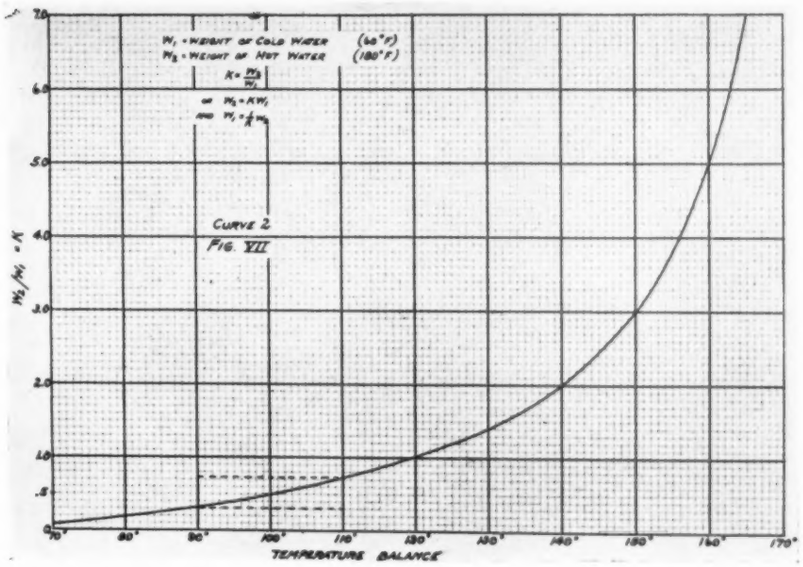


FIG. V.



In making manual adjustments of flow without the aid of a flow meter it is always necessary for the operator to judge the magnitude of changes produced by certain changes in valve opening. He usually associates so many turns or fractions of a turn of the valve wheel with so many degrees change in temperature as shown by previous experience. In reality, he is by this method determining what percentage increase or decrease one turn or fraction of a turn produces in the change in flow, for if we will recall equation No. 5, Part III, and curve No. 2, we will see that for comparatively small changes in temperature, the relation between temperature and the ratio $\frac{W_2}{W_1}$ is practically constant.

For example, a temperature of 90 deg. is increased in 5 deg. increments by the following percentage changes in flow of hot water: 90 deg. is increased to 95 deg. by 22 percent increase in flow of hot water, 95 deg. is increased to 100 deg. by 21.5 percent increase in flow of hot water, 100 deg. is increased to 105 deg. by 20 percent increase in flow of hot water, 105 deg. is increased to 110 deg. by 19.6 percent increase in flow of hot water.

Note the equality of these percentage changes for equal increments of temperature change. For smaller increments of temperature change, or reasonable variations, the percentages are practically equal. Thus we see a decided relationship between temperature deviation and the required percentage change in flow to restore the original temperature. Percentage changes in flow actually represent percentage changes in the supply or demand, since we have used hot and cold water of constant temperature (180 deg. and 60 deg.). If the supply of hot water remains the same, definite deviations represent definite changes in demand which, of course, could be corrected by the same changes in the supply.

The actual deviation for a 20 percent change in demand at any temperature within extremes of maximum and minimum balance, bears a rather peculiar relationship to the value of K and the difference in temperature between the two possible extremes. It is always maximum for a certain value of K or a certain temperature balance and remains fairly constant over a wide band but rapidly becomes less as the temperature balance approaches either extreme. This characteristic accounts for many difficulties encountered when the control temperature is very near the temperature of the heating medium or where very little temperature rise is desired in proportion to that available in the heating medium. Such conditions are usually considered favorable, but under these conditions, K values change rapidly, for small changes of the limiting temperatures and percentage change of supply which are correct at one time may be several hundred percent excessive at another time.

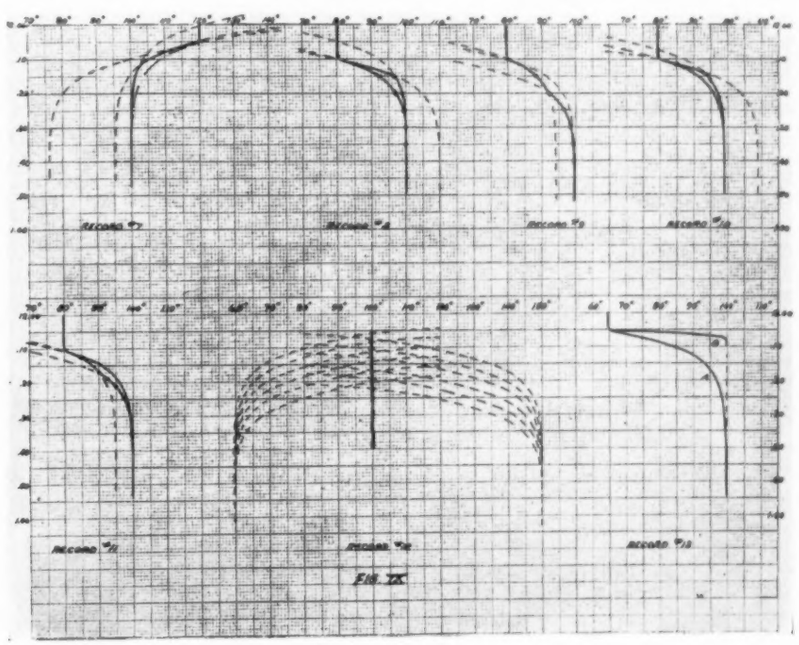
The conditions existing in the process represented by Fig. V have been made to correspond to the usual control problem, i.e., the maximum and minimum balances have been given the usual proportions so that the control point of 100 deg. gives the usual value of K. Thus it is a perfectly safe estimate to assume that 5 deg. deviation at 100 deg. represents 20 percent change in demand and that other deviations are in direct proportion.

If the maximum and minimum temperature differences are in the same proportions, 20 percent change in demands may still be considered as producing 5 percent change in temperature for higher temperatures (i.e. 10 deg. at 200 deg. etc.). Usually when dealing with higher temperatures the difference in maximum and minimum is not as great in proportion and 2—5 percent becomes a practical estimate.

Five percent temperature deviation would, of course, mean equal linear deviations on the scale of any temperature range providing the scales are the same width. They would, however, always be the same linear percentages of the scale, except when suppressed scales are used, i.e. 200 deg.—500 deg. etc.

This distinct relationship between deviation and percentage change in demand leads us to the conclusion that if the controlled valve should possess flow characteristics such that, for each turn of the valve or increment of valve lift, the flow could be increased equal percentages, the flow would be calibrated in terms of temperature change, and one turn of the valve wheel would compensate for a certain temperature change regardless of the amount of heating medium flowing or the position of valve opening.

The controlled valve shown in Fig. V possesses such characteristics and by calibration we know that 1 lb. increase in diaphragm motor pressure gives approximately 33 percent increase in flow or a correction for approximately an 8.3 devia-



tion at 100 regardless of the amount of hot water flowing. Since the controlled valve possesses these properties it becomes more convenient for manual control than making calculations from actual flow measurements and it was for this reason that the air-operated controlled valve was used for these manual adjustments (Part III), although actual flows were checked by the orifice meters.

Since 1 lb. increase in diaphragm motor pressure gives approximately 33 percent increase in flow, 5 deg. deviation would only require 0.6 lb. change in diaphragm motor pressure to return the process to the original temperature. If this correction is to be accomplished automatically by a mechanical relation between temperature change and valve lift, it is evident that the relationship must be such that the temperature element would more than have to traverse the total scale to operate the valve from closed to its fully opened position.

$$\left(5 \text{ percent} \times \frac{12 \text{ lbs.}}{0.6 \text{ lbs.}} = 125 \text{ percent}\right)$$

Suppressed ranges would require an even greater range since 5 deg. would be a greater percentage of the scale. The range through which the temperature element must pass—for such design of mechanical control mechanisms—is generally called the "Throttling Range" but is sometimes called the "Range of Regulation" or simply the "Regulation."

From the above it is evident that satisfactory automatic control could not be obtained—with such a mechanical device—if the process lags required sufficient throttling range to give the correct adjustment. With a change of demand the balance point would be midway between the original temperature and the temperature of balance if no correction were made, and the variations for continuous control would be only half as great as when no control was used. A really practical design of automatic control which would mechanically duplicate perfect manual control must be a combination of throttling range control and a rate control which was briefly analyzed above.

Any conclusions as to desirable valve reactions must be based on the valves flow characteristics and equal percentage changes in flow for equal increments of valve lift are the only characteristics which would allow a definite valve change always to produce the same effect on the process.

Detailed analyses of valve flow characteristics will be given under the analyses of unfavorable lags. As a matter of comparison, however, it might be interesting to note that a controlled valve which possesses a straight line flow characteristic, will produce (for the same increment of lift) more than ten times greater percentage change in flow in its 0.1 open position than in its 0.9 open position. Under such conditions we could not expect to adjust the mechanical relation between temperature deviation and valve lift so as to be of any practical value in automatically controlling a process which involved unfavorable lags and which required variations in the throttling position of the valve, because the effects produced by the same valve reactions might vary widely.

An automatic instrument used automatically to control or adjust the flows has the decided advantage of making immediate corrections corresponding to continuous observation by a hand operator, but this advantage can easily be more than offset by a mechanical reaction which is not consistent as to the magnitude or rate of change of its corrections.

An automatic temperature control instrument is usually used because of its mechanical advantages, but to reproduce the other properties of a good hand operator it should be so designed that its control mechanism functions to hold the temperature on a curve that approaches zero rate of change as the control point is reached, and it should be adjustable to follow any curve of this characteristic because the lags of all processes determine the maximum rate of temperature change which can be used without overcontrolling.

By possessing such mechanical properties an automatic instrument would hold the controlled valve stationary, or the flow constant, if the temperature was returning on the desired curve, or move the valve to increase or decrease the flow so as to restore the rate of temperature change to this curve.

Most automatic control instruments tend to restore the temperature to the control point so rapidly that overcontrol is continuously produced if any appreciable lags exist in the process.

The absence of unfavorable lags and the presence of favorable capacities in a process permit the process to be corrected on a curve much faster than the process temperature balance curve. Under very favorable conditions these correcting curves may be practically a horizontal line and on such processes ordinary control instruments may be used quite successfully.

An example of such a control balance curve may be given by replotting the process temperature balance curve which we have obtained in these analyses, and plotting it on a smaller time scale. Record No. 13, Fig. IX, shows this transposition. Curve (A) is a reproduction of the process temperature balance curve given by these analyses and Curve (B) is the same temperature values plotted against 1/10 the original time values.

Curve (B) represents a correcting balance curve which will produce reactions ten times greater than the actual deviation required. Thus they would be constantly overcontrolling to whatever extent the unfavorable lags of process permitted. Many processes having a predominance of capacity lag may be corrected by much faster reactions without serious overcontrol, and for this reason their automatic control with ordinary types of control instruments should offer very little difficulty when properly applied.

As we have explained several times above, the process as represented in Fig. V does not involve unfavorable process lags but has a predominance of favorable capacity lag and for this reason the correcting balance curve may be very similar to the one shown in Record No. 13, and a very narrow band of throttling may at times give smooth, controlled flows.

Because of these favorable physical reactions an open-and-shut or two-position control will give a very close temperature control of the process as represented, although the flow of hot water will be very radical and unmeasurable by a Recording Orifice Meter or any rate measuring device.

Record No. 12 shows the actual result of an open-and-shut control applied to this process. When the controlled valve was closed the temperature of balance was, of course, the temperature of the cold water (60 deg. F.) but when the controlled valve was fully opened the maximum flow would give a temperature balance of 150 deg. F.

With these excessive reactions, their effects completed their cycles through the instrument and process in approximately a minute's time—due to the absence of unfavorable lags—and the small cycle of temperature control resulted. The dotted extensions of a few of the process temperature balance curves show the actual reactions. On an ordinary 24-hour chart recorder these small variations were not recorded and the resulting record was a perfectly straight line.

An analysis of this same control problem but involving an unfavorable transfer lag will be given in Part V of the series. The processes analyzed so far would have demanded nothing more than the ordinary control mechanism and very little control engineering for their successful automatic control provided steady flows were not necessary. The addition of transfer lags, however, causes the problems to be similar to those encountered in refinery practices and the importance of more desirable instrument design and practical control engineering, becomes very obvious.

World Oil Production—Official Figures for 1933

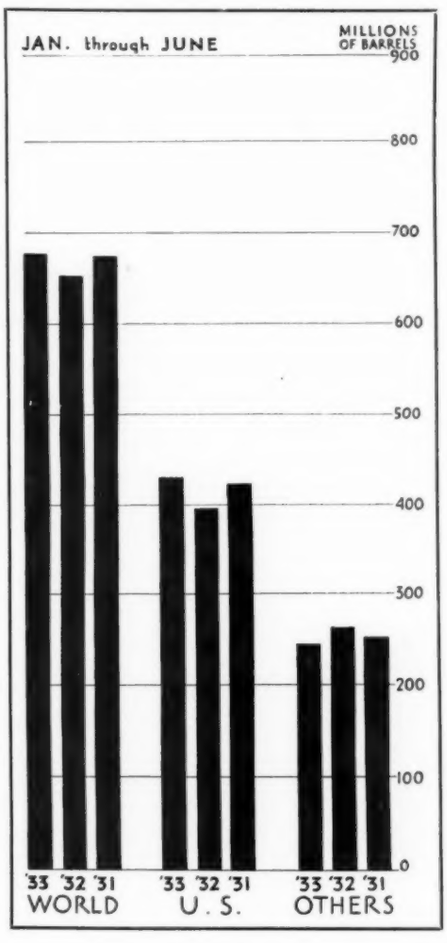
All figures furnished direct to WORLD PETROLEUM by Governments, except where otherwise specified

(Figures in U. S. Barrels—Conversion ratio 7 bbl. = 1 ton)

Country	January 1933	February 1933	March 1933	April 1933	May 1933	June 1933	July 1933
United States	63,998,000	61,029,000	75,302,000	65,313,000	84,747,000	82,841,000	82,165,000[4]
Russia	10,382,400	10,162,600	11,003,300	11,824,400	12,794,600	12,489,400	11,837,000
Venezuela	8,750,000	9,985,711	10,324,328	9,340,870	9,380,893	9,380,000[1]	10,197,425
Roumania	3,999,898	3,661,749	4,009,649	3,949,001	4,104,919	3,500,000[1]	3,500,000[1]
Persia[2]	3,563,112	2,929,668	3,683,386	3,984,519	4,370,835	4,300,000[1]	4,300,000[1]
Mexico	2,889,658	2,543,443	2,825,021	3,011,973	2,857,620	2,805,353	2,935,109
Netherland India	3,096,051	3,031,021	3,390,051	3,028,639	3,357,214	3,280,382	3,249,428
Colombia	1,005,353	1,035,273	1,218,626	1,093,410	1,169,238	1,113,328	1,189,655[3]
Argentina	1,138,500	1,153,500	1,140,000	1,051,000	1,210,300	1,181,500	1,180,000[1]
Peru	976,931	806,785	825,000	818,359	820,000[1]	907,863	1,055,727[3]
Trinidad	815,439	778,842	839,857	834,876	816,080	772,626	759,076
British India	732,894	669,617	761,302	700,000[1]	700,000[1]	700,000[1]	700,000[1]
Poland	338,100	299,845	300,000[1]	318,619	326,900	325,000[1]	336,553
Sarawak	180,320	194,166	214,984	196,595	203,385	184,250	189,000[1]
Japan and Taiwan[1]	195,000	195,000	195,000	195,000	195,000	195,000	195,000
Egypt	136,451	126,861	131,964	124,103	138,348	137,620	136,500[1]
Ecuador	133,912	119,345	128,504	121,647	128,226	141,640	147,889
Canada	82,778	73,087	87,218	84,974	89,754	113,447	99,510
Germany	130,732[3]	121,835[3]	141,183[3]	129,591[3]	134,666[3]	130,200[3]	131,300[3]
Iraq[1]	100,000	100,000	100,000	100,000	100,000	100,000	100,000
France[1]	46,000	46,000	46,000	46,000	46,000	46,000	46,000
Others[1]	36,000	36,000	36,000	36,000	36,000	36,000	36,000
Total	102,727,529	99,099,348	116,703,373	106,302,576	127,726,978	124,680,609	124,484,872

[1] Estimate. [2] Anglo-Persian Oil Co. figures revised; fuel oil returned to the ground has been deducted. [3] Thuringea estimated 7,000 bbl.: official figure for Prussia. Sakhalin Russian included with Russia. Sakhalin Japanese included with Japan. [4] A.P.I. estimate. [5] International Petroleum Company's figures.

Comparison of crude oil production in the United States, all other countries and total for the world during the first five months of 1933 and corresponding periods of 1932 and 1931.



Official Figures for 1931, 1932 and First Seven Months of 1933

Country	Total 1931	Daily Average 1931	Total 1932	Daily Average 1932	Total 7 months 1933	Daily Average 7 months 1933
United States	851,081,000	2,331,729	781,845,000	2,136,188	515,395,000	2,431,108
Russia	156,342,900	428,336	149,719,000	409,070	80,493,700	379,687
Venezuela	120,343,104	329,707	119,596,512	326,766	67,359,227	317,732
Roumania	46,333,945	126,942	50,491,205	137,954	26,725,216	126,062
Persia	40,253,486	110,283	45,122,455	123,285	27,131,520	127,978
Mexico	33,038,853	90,517	32,802,285	89,624	19,868,177	93,718
Netherland India	32,818,346	89,913	39,584,027	108,153	22,432,786	105,815
Colombia	18,237,190	49,965	16,384,956	44,768	7,824,883	36,909
Argentina	11,709,759	32,081	13,166,900	35,975	8,054,800	37,994
Peru	10,102,116	27,677	9,899,266	26,026	6,210,665	29,295
Trinidad	9,743,763	26,695	10,023,780	27,387	5,616,796	26,494
British India	7,830,101	21,452	8,600,312	23,500	4,963,813	23,414
Poland	4,397,760	12,048	3,905,230	10,670	2,245,017	10,589
Sarawak	3,338,472	9,146	2,274,043	6,213	1,362,700	6,428
Japan and Taiwan	1,884,285	5,135	2,340,000	6,393	1,365,000	6,438
Egypt	1,845,938	5,057	1,742,370	4,760	931,847	4,395
Ecuador	1,750,633	4,796	1,573,857	4,300	921,163	4,343
Canada	1,583,339	4,337	1,054,373	2,880	630,768	2,975
Germany	1,778,602	4,873	1,824,019	4,983	918,207	4,331
Iraq	1,200,000	3,300	1,200,000	3,300	700,000	3,302
France	512,862	1,405	552,000	1,508	322,000	1,518
Others	338,700	930	432,000	1,180	252,000	1,188
Total	1,256,465,154	3,442,370	1,294,134,090	3,535,885	801,725,285	3,781,723

Foreign Oil Legion

G. GORDON BELL, one of the three new directors of the Anglo-American Oil Company, Ltd., selected at the last Annual General Meeting was born in Canada, is 43 years old, a graduate of McGill University. He served with distinction during the war and received the D. F. C., Legion d'Honneur, and Croix de Guerre avec Palmes.

G. Gordon Bell

R. A. CARDER, another of the three new directors of Anglo-American Oil Company, Ltd., selected at the last Annual General Meeting, was born in England, is 41 years old, educated at King Edward's Grammar School. During the war he served in the Near East and on the Western Front until seconded to H. M. Petroleum Executive.

R. A. Carder

LEW KLEIN, head of the oil well division of the American Steel Export Company for the past four years, has left that company August 8 to act as export agent for a number of oil field equipment concerns. Mr. Klein's offices will be at Room 601, 285 Madison Avenue, New York City.

E. E. SOUBRY, another of the three new directors of the Anglo-American Oil Company, Ltd., selected at the last Annual General Meeting, was born in England, is 37 years old, started with Anglo-American as a junior in the Queen Anne's Gate, Westminster offices. He served throughout the war with the Royal Fusiliers and rejoined the company after the Armistice, becoming General Sales Manager in January 1932.

HERBERT PRATT, chairman, Socony-Vacuum Oil Corporation, New York, recently arrived in England, having crossed the Atlantic on the S. S. Barengaria.

R. G. A. VAN DER WOUDE, president, Shell Petroleum Corporation, St. Louis, Mo., recently arrived in France from the United States.

E. E. Soubry

T. L. JACKS, resident director in Persia of the Anglo-Persian Oil Company, has been visiting in England.

H. C. GEORGE, who took charge of the newly established school of petroleum engineering at the University of Oklahoma in 1924 and who has been director of the school since that time, resigned recently to become head of the department of oil and gas production at the University of Pittsburgh.

WINTHROP P. HAYNES, chief geologist in Europe of the Jersey Standard interests plans to return to London from the United States during September.

THEIR MANY friends will be gratified to learn that on the appointment of Mr. E. E. Soubry to the board of directors of the Anglo-American Oil Company, Ltd., Mr. H. S. Tegner and Mr. A. Waterston have been appointed Joint General Sales Managers of the company in Great Britain. Mr. Tegner will control all territory south of Derby, while Mr. Waterston will direct the north of England and the whole of Scotland.

M. Y. YOUNG, chief medical officer, Anglo-Persian Oil Company is to retire in the near future.

J. P. HUGHES, general manager, Romano-Americana, Bucharest, Roumania, has been in London on the business of his company.

H. S. Tegner

HAROLD F. SHEETS, vice president, Socony-Vacuum Corporation, who has been making an interesting aeroplane tour of the company's properties in southeastern Europe, returned to New York in mid-August.

J. J. MACPHIE, manager, fuel oil department, Asiatic Petroleum Company, returned to London from the United States recently.

A. Waterston

D. A. SUTHERLAND, chairman and managing director, Affiliated Oilfields Ltd., left London for Palestine at the end of July. Dr. Sutherland will remain in Palestine throughout September.

UNITED STATES

	Daily Production bbl.	Daily Runs to Stills bbl.	Gasoline Stocks bbl.	Imports for week bbl.	California Shipm. East for week bbl.
Week Ending July 29.....	2,749,140	2,570,000	54,720,000	896,000	626,000
	634,940*				
Week Ending August 5...	2,721,995	2,530,000	54,470,000	721,000	74,000
	624,495*				
Week Ending August 12...	2,790,960	2,505,000	53,170,000	1,678,000	193,000
	584,660*				
Week Ending August 17..	2,766,500	2,655,000	53,440,000	886,000	510,000
	601,400*				

Underlined figures indicate improvement in statistical position—decrease in production, runs to stills, gasoline stocks and imports.

*** Total estimated production, official and unreported, of The Rusk-Gregg field, East Texas.**

Crude Exports Increase

DURING June, 1933, total imports amounted to 2,855,000 bbl., unchanged from the preceding month when 2,859,000 bbl. was imported. This figure compares with average monthly total imports of 9,090,000 bbl. brought into United States during the first six duty-free months of 1932. A nominal volume of 1,000 bbl. of motor fuel was imported during the whole of June, 1933, as compared with a monthly average of 1,272,000 bbl. imported during the first six duty-free months of 1932.

Exports of all petroleum products, including motor fuel, increased sharply in June, 1933, approaching the record post-tariff export volume attained in April of the current year, thus in part suggesting sustained improvement in foreign consumption, but influenced primarily by cheap prices prevailing in the United States. Total exports in June, 1933, amounted to 9,471,000 bbl., as compared with 8,177,000 bbl. exported during the preceding month, an increase of 15.81 percent; and only 2.14 percent under the total exports in June of 1932. Motor fuel exports increased to 2,619,000 bbl. in June, 1933, as compared with 2,129,000 bbl. exported in May, an increase of 23.00 percent, but 25.62 percent under motor fuel exports in the corresponding month of 1932. Most notable in June, 1933, was the increase in crude oil exports which reached 4,378,000 bbl. or 145,800 bbl. per day, an all time record by a large margin, influenced entirely by high rate of production in the United States and resulting low prices. In fact, crude oil exports from the United States during June, 1933, exceeded by 92.00 percent the average crude oil exports during 1932, the highest year on record, and by fully 50 percent the crude oil exports for any single month to date.

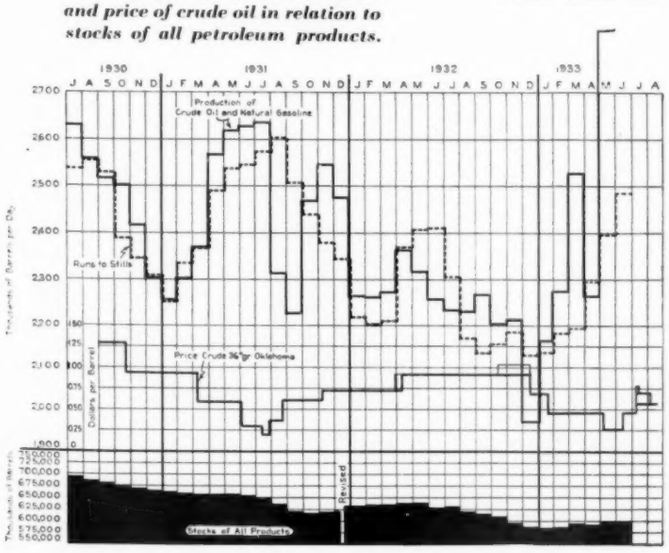
Motor Fuel Demand Improves

INDICATED domestic demand for motor fuel during June, 1933, averaged 1,257,000 bbl. per day, an increase of 14.59 percent over the daily average for the preceding month; 89,000 bbl. per day above the adjusted * domestic motor fuel consumption in June of 1932, an increase of 7.62 percent; but still 48,000 bbl. per day under the domestic motor fuel consumption in June of 1931, the peak year, a decline of 3.68 percent. Domestic motor fuel demand thus indicates an accelerated rate of recovery in consumption, the change in demand during May, 1933, having been only 4.9 percent above the corresponding month of 1932, and 7.52 percent under May of 1931. The marked contraction of industrial activity in the United States, as indicated by the New York Times weekly index of business, which after rising sharply from March to July of the current year lost in the last month about 25 percent of the advance, should be considered as a temporary technical reaction due to the uncertainties arising from promulgation of various codes under the NRA, and consequently should not affect the apparently sound improvement in the fundamental condition of the country, particularly because, even after the recent decline, the index of business activity was higher than at any time since October of 1930.

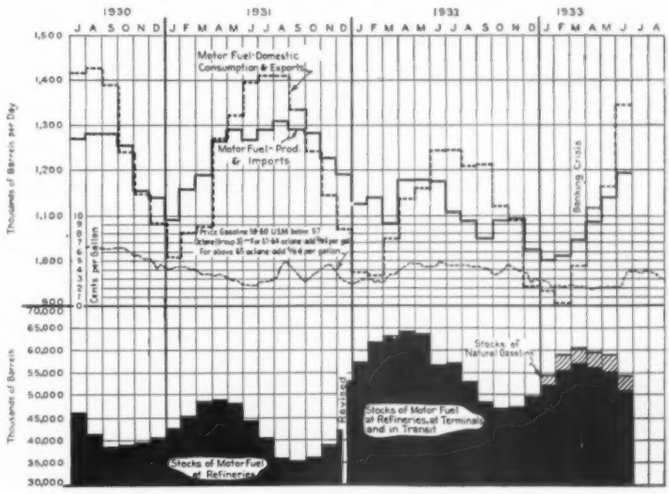
The daily rate of exports of motor fuel averaged 87,000 bbl. in June, 1933, an increase of 26.1 percent over the preceding month;

*** In 1932 the June and July figures are averaged because of large reserve accumulation of motor fuel by distributors during June in anticipation of the Federal one-cent excise tax made effective June 21.**

U. S. production, runs to stills and price of crude oil in relation to stocks of all petroleum products.



U. S. consumption and exports, production, imports and prices of motor fuel in relation to motor fuel stocks.

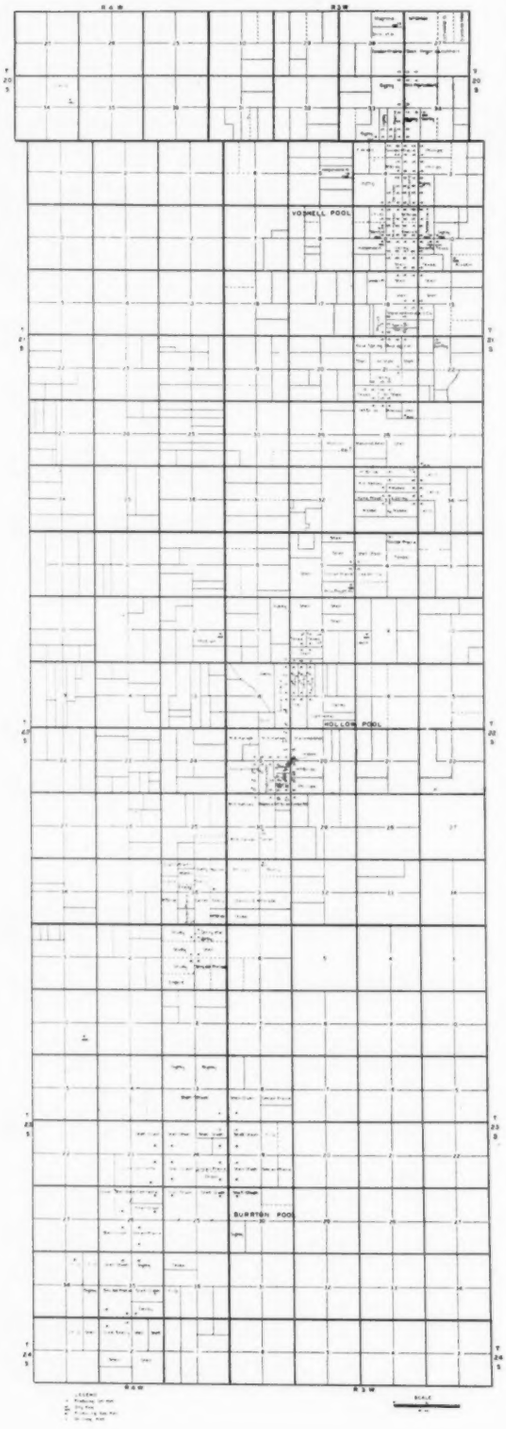


a decrease of 25.9 percent under June of 1932 and of 20.1 percent under May of 1931.

Total daily demand for motor fuel in June, 1933, therefore showed the first reversal of the downward trend from the corresponding months of 1932, increasing 4.59 percent as compared with June of 1932; but still 4.95 percent under June of 1931, the year in which the motor fuel demand was at peak.

On July 1, 1933, motor fuel stocks at refineries, terminals and in transit amounted to 54,581,000 bbl., a decrease of 4,552,000 bbl. as compared with stocks on hand on June 1, 1933, indicating that during June motor fuel demand exceeded supply by 152,000 bbl. per day. On July 1, 1932, total motor fuel stocks amounted to 61,558,000 bbl. indicating that in the past year comparable storage has been reduced by 6,977,000 bbl.

Major trend of oil fields in Western Kansas producing 50 percent of state's total.



Refinery Runs Continue Excessive

THE CRUDE OIL and natural gasoline production during June, 1933, averaged 2,855,000 bbl. per day, 28,000 bbl. per day above the production in the preceding month, and for the second month in succession at the highest daily output recorded since October of 1929. The high rate of crude oil and natural gasoline production was extended into July and August of the current year averaging about 2,850,000 bbl. per day.

Total stocks of all oils increased 1,384,000 bbl. during June, indicating a daily gross addition to stocks of 46,100 bbl.

The crude oil runs to stills continued till the end of August at an unduly high rate, being in excess of 2,500,000 bbl. per day since the middle of June, 1933.

The actual current crude oil production and runs to stills are therefore respectively about 600,000 bbl. and 200,000 bbl. per day in excess of economic requirements as determined by the Statistical Sub-Committee of the American Petroleum Institute. The unjustifiably high rate of crude production and of crude runs to stills during August continued to be a depressing factor on prices for all petroleum products. The promulgation of the Code of Fair Competition under NRA, is expected to eliminate the production of crude oil in excess of demand by the middle of September.

Price Trend Irregular

CRUDE OIL and motor fuel prices moved within a narrow range during August, influenced primarily by the uncertainties of the Code of Fair Competition for the oil industry which was finally signed by President Roosevelt on August 19 and became effective September 2. In the meanwhile, as already indicated, the overproduction of crude and of motor fuel contributed to pronounced weakness of prices on all petroleum products.

During August tank wagon/service station and tank car prices for motor fuel remained virtually stationary, with but sporadic fractional variations. On August 1 the Standard Oil Company of New Jersey advanced the price of 65 and above octane grade gasoline ¼-cent a gallon to 6¼ cents in tank car lots at refineries, and the advance was met by other eastern refiners. On August 10 major oil companies reduced gasoline ½-a-cent per gallon in northern New York, new prices being 18 and 20 cents a gallon for regular and premium grades, including all taxes.

Refinery gasoline quotations during August shifted fractionally lower: 3–3⅜ cents per gallon for 58–60 U.S.M. grade, 57 and below octane rating in Group 3, Oklahoma market: 57 to 64 octane rating, U.S.M., was quoted at 3⅞–4¼ cents per gallon; and 65 and above octane rating, U.S.M., commanded 4¼–4¾ cents per gallon. On the East Coast, at Bayonne, the U.S.M. grade, 57 to 64 octane rating, was quoted at 5¾–6 cents per gallon. Gulf Coast prices for export on August 20 were 4¼ cents per gallon for 58–60 U.S.M. grade, ¼ of a cent lower than in the preceding month.

Natural gasoline remained unchanged from July and was quoted at 2⅞–3 cents per gallon for grade 26–70 in Oklahoma and North Texas, and at 3¼–3½ cents per gallon in Northern Louisiana.

Kerosene prices dropped about ½ a cent per gallon during August in Mid-Continent markets. On August 22 grade 41–43 w.w. was quoted at 2¼–2½ cents per gallon in Group 3, Oklahoma market, and at 5–5¼ cents per gallon on the East Coast, at Bayonne. Gulf Coast prices for export remained unchanged at 4–4¼ cents per gallon for 41–43 p.w. grade.

Crude Oil Prices

(Dollars per Barrel)

		June 17 1933	July 6–Aug. 3 1933
Oklahoma, N. Texas and Kansas	28 deg.	$0.28	$0.38
	36 deg.	44	54
	40 deg. top	52	62
East Texas	flat	50	50
West Texas	flat	30	30
Gray Co., Texas	40 deg.	40	46
Gulf Coast	25 deg.	44	44
	30 deg.	54	54
	34 deg.	64	62
	40 deg. top		64
Conroe	40 deg. top		69
Smackover, Ark.	flat	30	30
Rocky Mountains:			
Salt Creek	36 deg.	54	54
Elk Basin	flat	62	72
Pennsylvania:			
Bradford Distr.	flat	1.47	2.00[1]
Eureka Lines	flat	1.12	1.62[1]
Mt. Pleasant, Mich.	flat	75	80
		March 5 1933	June 26 1933
California:			
Santa Fe	34 deg.	87	1.02
Kettleman Hills	39 deg.	78	88

[1] Raised on August 11 to $2.10 pr. bbl. in Bradford and to $1.72 in Eureka Lines.

Posted crude oil prices in the Mid-Continent area were brought to uniform level on August 1, 2 and 3 when Magnolia Petroleum Company (Socony-Vacuum), Sinclair Prairie Oil Marketing Company (Consolidated), Empire Pipe Line Company, Continental Oil Company, Phillips Petroleum Company, Pure Oil Company and others reduced their postings 13 cents a barrel for Oklahoma and Kansas crudes, with corresponding decreases elsewhere, to the quotations posted on July 6 by Carter Oil Company (S.O.N.J.), Stanolind Crude Oil Purchasing Company (S.O.Ind.), The Texas Company, the Gulf companies and others.

With the promulgation on August 19 of the Code of Fair Competition, under NRA, and

its taking effect on September 2, 1933, a considerable increase in crude oil prices is anticipated. The Code, as originally signed by the President, provides for a ninety-day test of governmental control of prices of gasoline and crude oil; the fixed price ratio per barrel of 36 deg. A.P.I. gravity Oklahoma crude is 18.5 times the price per gallon of 60–64 U.S.M. regular grade refinery gasoline in Group 3, Oklahoma market which may be fixed by the President. Thus, at present, with regular grade refinery gasoline selling in Group 3 market at 4⅛ cents per gallon the 36 gravity Oklahoma crude would command 76 cents per barrel, or 22 cents per barrel more than was actually being paid at the end of August. If, as expected, President Roosevelt will further fix the Group 3 refinery gasoline price at 5¼ cents per gallon, an increase of 30.3 percent, then the 36 gravity Oklahoma crude oil will be automatically raised to 97 cents per barrel, or 43 cents above the present price, an increase of 79.6 percent.

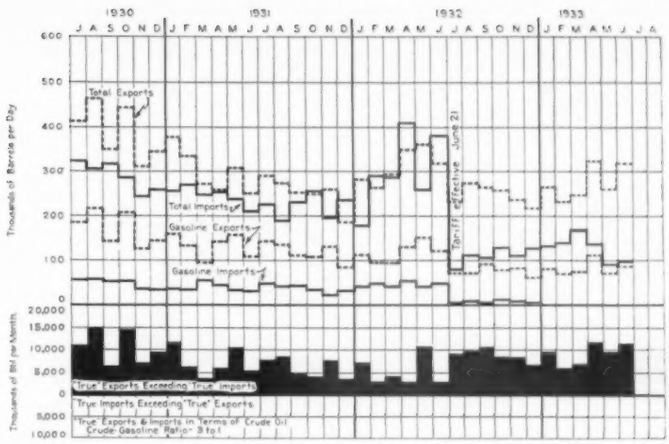
NRA Oil Code Approved

On AUGUST 19, 1933, President Roosevelt signed the Oil Code as drawn by General Johnson, NRA administrator, after a major split in the ranks of the oil industry took place on the subject of price fixing. An important group of oil interests as well as the National Administrator, argued that federal control should not go beyond control of production, but ultimately the government's written code gave to the President discretionary authority to make a ninety-day test of price control by establishing a base price for refinery gasoline. The price of crude oil was made directly dependent on refinery gasoline by a formula establishing its value per barrel at 18.5 times the base price of a gallon of refinery gasoline.

Other sections of the Oil Code provide for minimum rates of wages, varying with different sections of the country and for maximum hours of work per day and per week for separate classes of employees. The President is also given power to control interstate shipments of crude oil and of all its products produced in any state which produces crude oil in excess of quotas recommended by the Federal Planning and Coordinating Committee. Wildcat developments are not curbed by the Oil Code but shipment of petroleum in interstate commerce which was produced in a new field or pool which is not developed in accordance with a plan approved by the President is unfair competition and in violation of the code.

Pending the promulgation of the Oil Code a number of major oil companies adopted the Blanket Code of the NRA providing for wage rate increases and reduction in working hours. Among the first companies to adopt the blanket code were the Standard of Indiana on August 3, the Ohio Oil Company and the Shell Companies on August 5 and the Standard Oil Company of New Jersey on August 9 followed by most of the larger companies.

Total U. S. imports and exports and gasoline imports and exports in relation to true exports exceeding true imports.


1930
1931
1932
1933
J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A
Thousands of Barrels per Day
Total Exports
Total Imports
Gasoline Exports
Gasoline Imports
Tariff effective June 21
Thousands of Bbl. per Month
"True" Exports Exceeding "True" Imports
True Imports Exceeding "True" Exports
"True" Exports & Imports in Terms of Crude Oil
Crude-Gasoline Ratio 3 to 1

Proration

OFFICIAL proration enforcement throughout the Mid-continent area was entirely successful during the month of August, but the effect of proration was to a very considerable extent counteracted by large increases in production in all states. Such increases were due to higher demand from crude oil purchasing companies just preceding federal control under the oil code.

East Texas

THE DISTRICT OF COLUMBIA Supreme Court ruled against the refiners in the East Texas field who attacked the constitutionality of the order of President Roosevelt prohibiting shipments of illegally produced oil in interstate commerce. The plaintiffs claimed that the order exceeded the authority of the government under the Constitution but the Court ruled that the order was constitutional under the NRA act dealing with a "national emergency productive of widespread unemployment and disorganization of industry, which burdens interstate and foreign commerce, affects the public welfare and undermines the standards of living of the American people."

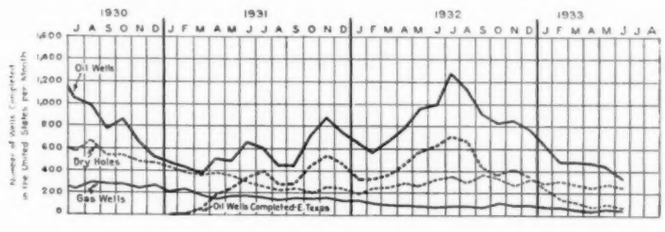
For the first time in many months estimated total production of the East Texas field fell under the allowable when in the week ending August 7 the field produced 584,666 bbl. per day as compared with the allowable for that period of 598,052 bbl.

Because of anticipated higher prices for crude oil, as indicated elsewhere in this review; because of possible state limitation of drilling in the East Texas field; and because of considerable off-set requirements yet to be completed by the major oil companies, the number of new projects and completions in the field increased from the recent low of 25 per week of each to from 50 to 75 per week of each. The total number of producing oil wells in the East Texas field approached 11,000 at the end of August.

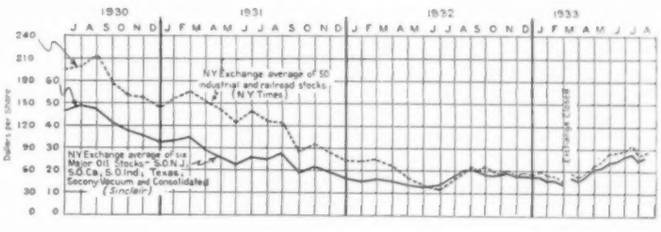
The encroachment of salt water in the East Texas field is becoming such a pressing problem that the question of the disposal of vast quantities of salt water is now being seriously considered. A large number of wells are now making water and the total is increasing daily, and will increase in the future at a greatly accelerated rate, the rapid encroachment being a typical characteristic of the Woodbine sand.

The East Texas Anti-Pollution Association and the Texas Petroleum Council are cooperating in solving the problem. Several plans have been advanced for the disposition of between 500,000 and 700,000 bbl. of salt water per day which it is estimated the field will soon be producing. The least expensive plan would provide for the construction of large strategically located reservoirs, locks and canals, collecting the salt water in those reservoirs and releasing it in the Savine River at flood stage; which, however, may give rise to objections later by the state. The most feasible and the most expensive plan, provides for the construction of a dam of large diameter with Redwood or cast iron pipeline from the field to the Texas Gulf Coast. A third plan provides for returning the water into the Woodbine sands by pumping it into wells west of the field, thus possibly accentuating the water drive, but it is questionable whether large quantities of salt water can be absorbed daily through a few wells.

U. S. drilling; comparison of oil wells, dry holes, and gas wells.


1930
1931
1932
1933
J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A
Oil Wells
Dry Holes
Gas Wells
Oil Wells Completed-E. Texas

Six major oil stocks in relation to 50 industrial stocks on the New York Stock Exchange.


1930
1931
1932
1933
J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A
Dollars per Share
N.Y. Exchange average of 50 industrial and railroad stocks (N.Y. Times)
N.Y. Exchange average of six Major Oil Stocks—S.O.N.J., S.O.Ca., S.O.Ind., Texas, Socony-Vacuum and Consolidated (Sinclair)
Exchange closed

Tomball—Gulf Coast

THE TOMBALL field continued to be of indefinite importance throughout August, with but little probability of its developing into a major oil producing pool.

The Humble Oil and Refining Company No. 1 Reid in Chauncey Goodrich survey was completed early in the month for around 1,500 bbl. per day from 5,565 ft. for the third oil producer but its completion is not of great importance because No. 1 Reid is only 1,500 ft. southeast from the discovery well and is not a large producer.

A number of dry gas wells with capacities around 5,000,000 cu. ft. per day have been completed in the general Tomball area but the attempts of several operating companies to shut off the gas and obtain oil production just below the gas horizon resulted only in reaching the salt water table.

Greta—South Gulf Coast

THE GRETA field was discovered in May by the Greta Oil Company No. 1 O'Brien which was completed for 500 bbl. per day initially from low oligacene sand encountered at 4,400 ft. The Greta discovery well was located nine miles north east from the Refugio field and in a well defined trend of closely spaced oil pools which include the White Point, the Saxet, the Refugia, the Fox, the O'Connor, the McFaddin and the Keeran. The oil fields in this trend up to date have been of secondary importance with only Refugia developing large production. Several fields in that trend are controlled entirely by some major companies and consequently are very conservatively developed.

The leases in the Greta area were at the time of the discovery all owned by independent oil operators mostly in small tracts and accordingly a very active drilling campaign ensued. At the end of August the Greta field had ten producing oil wells, and about 20 projects under way; the producing wells averaged about 1,000 bbl. per day each and therefore the field will shortly come under production regulations of the Texas Railroad Commission; the Commission having already ruled to limit spacing of wells to one well to twenty acres.

The wells drilled to date have already proven an area of about two square miles, all wells producing from 4,350 to 4,400 ft. Two outline wells having failed in the 4,400 ft. sand are currently being drilled to test deeper horizons.

The Atlantic Oil Producing Company was the first major company to purchase a considerable number of leases in the new Greta field and to extend its six-inch pipeline from the Refugia field to Greta. Subsequently the Texas Company and the Humble Oil and Refining Company entered the new field by purchasing a few leases.

Central Oklahoma

IN THE OKLAHOMA City field the Corporation Commission ruled that certain Wilcox sand wells that were producing more than 20,000 cu. ft. of gas per bbl. of crude oil lifted must be shut in until gas volume falls under 20,000 cu. ft. The eight wells affected produced up to 400,000 cu. ft. of gas per bbl. of oil lifted and averaged 86,600 cu. ft. per barrel. The new ruling will result in considerable conservation of the gas energy although the new limit remains excessive.

For the week ending August 12, the Oklahoma City field established an all-time record when it averaged 324,770 bbl. per day due to the desire of the producing oil companies to take all their August allowable as soon as possible, in anticipation of possible limitation of production under the Oil Code.

The Lucien field, as was reported in the preceding issue of WORLD PETROLEUM, was allowed to be opened for production early in August having been permitted a production of 8,000 bbl. per day. The opening of the field resulted in a number of new projects. At this time nine new wells are drilling in the field, which has five completed oil wells. The field has already been defined on the east and west edges by four dry holes.

At the time of the completion of the Crescent field discovery well during July by the Gypsy and Carter Oil Companies (Gulf and S. O. N. J.) completed for 6,000 bbl. per day initially at 6,025 ft., the Crescent field had six new projects under way.

Western Kansas

WITH INCREASED prices and demand for crude oil the development of Hollow-Mabee-Burrton trend of oil fields was greatly accelerated with a considerable number of new projects and completions, the fields of this major trend extending almost without interruption from Ritz-Canton-Galva field to the Burrton field, a distance of about 30 miles. At this time the trend accounts for about half of the Kansas production, producing daily around 55,000 bbl. of which the Hollow-Mabee fields, the new and most active areas, produce about 25,000 bbl. daily. This major trend is indicated on the accompanying map and was outlined on page 107 of March, 1932, issue of WORLD PETROLEUM.

Michigan

THE ACTIVE development of Central Michigan oil fields continued to bring most favorable results indicating that a very large volume of crude oil will be produced from that state.

The Mammoth Petroleum Corporation No. 1 Verette in section as T16N-R4W, half a mile east from the Vernon field was completed in August for an estimated flow of over 10,000 bbl. per day from the Dundee limestone encountered at 3,720 ft. The new No. 1 Verette although cutting five percent salt water was steadily flowing 2,000 bbl. per day under back pressure. It is anticipated that the operators encouraged by large wells in several scattered areas of Michigan will greatly accelerate the development of oil fields in this state.

Elwood, California

THE ELWOOD field in Santa Barbara County, now producing 14,000 bbl. per day is apparently due for considerably increased production as a result of the decision of the operators to begin development of the Sespe formation which was discovered in October of 1931 by the Barnsdall and Rio Grande Oil Company in their No. 14 Luttonbell which was completed for 2,400 bbl. of 42 gravity oil at 4,392 ft. It is estimated that about one half of the shallow oil wells in the Elwood field can be carried to the deeper Sespe formation.

BASIL B. ZAVOICO

MEXICO

Improvement in 1933

CONSIDERABLY increased activity during the first five months of 1933 in Mexican oil fields resulting in daily production in excess of the average for the past two years and maintenance of Mexico's position in world markets is reported by the Petroleum Department of the Ministry of National Economy in a review of the first five months of this year.

Thirty wells with a combined daily production of 27,664 bbl. against completion of 14 producing wells with a combined daily production of 8,843 bbl. in the corresponding period of 1932, are reported. Seventy-seven drilling permits have been granted in the first five months of 1933 against 51 drilling permits in the same period of the preceding year.

Nineteen wells with a daily production of 11,882 bbl. have been completed in Tehuantepec zone, Vera Cruz. In the Panuco zone of the same state nine other wells were brought in during this period. These wells have a combined daily production of 15,153 bbl. As reported in WORLD PETROLEUM during the year, the review states that much development work is being done along the American border, in Nuevo Leon, Coahuila, and Tamaulipas states and in the north and south of Vera Cruz.

Combined production of Mexican refineries during this period is placed at 11,294,953 bbl. Export position is reported well maintained in spite of the world wide economic depression, with the United States continuing Mexico's best customer despite the import tax established in June of last year.

Oil and the Six Year Plan

PROVISIONAL PRESIDENT General Abelardo Rodriguez in discussing the six year economic plan for national rehabilitation which is to be undertaken in Mexico during the presidential term, 1934–1940, stressed the importance to the plan of taking into consideration an adequate fuel supply for industrial and agricultural machinery. The President stated that the plan had considered fuel production and was prepared to supply gasoline from national refineries if it became necessary. He deplored the high cost of motor fuel in Mexico where vast reserves of petroleum should encourage a lower price.

Development Work

MEXICAN EAGLE (Royal Dutch Shell) is adding a lubricant plant to its Minatitlan refinery, sinking several wells in its Tonala fields, and deepening the Coatzacoalcos river to permit vessels of 28 ft. draught to reach the refinery. The company has also completed construction of an 8-in. pipeline from its El Plan field to the main Tonala-Minatitlan pipeline to replace former river shipments of oil from El Plan camp.

The petroleum department has announced that the Mexican Gulf Coast Corporation is drilling in the Cacalilao zone, Vera Cruz. Permits have been granted to John Pohlen to explore a district a short distance from Mexico City, where, if exploration proved successful an entirely new field would be opened up. Felipe Iturbide, prominent Michoacan mining man, reported traces of petroleum near Morelia, state capital of Michoacan. These deposits are being tested to ascertain if they justify commercial exploitation.

Import Tax Evasion Charged

TAMPICO customs service is said to be investigating charges that petroleum companies in Mexico have evaded payment of $13,500,000 duty on steel drums and tubing used for pipelines, over a long period. It is charged that companies continued bringing in tubing and drums duty-free long after pipelines, etc. for the construction of which this material had been exempted from tax, were completed.

The charges are not considered seriously in oil circles here, as very few drums are imported, most of them being manufactured in a Tampico factory.

It is also rumored that the customs plan an investigation of a charge that companies imported tools to be used in the development of a natural resource in the oil boom 11 years ago, duty free, and have since exported them, thus according to the customs, having defrauded the government of export taxes. This investigation, it is said, may lead to temporary impounding of oil companies' property.

Exports

JUNE EXPORTS included among other products, 1,354,402 bbl. of crude and 253,814 bbl. of gasoline according to the Bureau of National Statistics.

Mexican Official Export Figures for May

	Barrels
Crude	1,198,962
Fuel oil	407,294
Gasoline	139,368
Gas oil	43,294
Lubricants	27,890
Kerosene	6,271
Asphalt (equivalent)	44,011
Total	1,877,090

Of the May exports, 34.5 percent went to the United States; 19.7 percent to Great Britain; 19.3 percent to Germany; 11 percent to Argentina; and the balance to Central and South American states. The leading exporters for the month were the Mexican Eagle (Royal Dutch Shell) with 42.6 percent and Huasteca Petroleum Company with 35.1 percent. Revenue for the state from products sold abroad was $130,000 in production taxes and $60,000 from oil export taxes against $100,000 in production and $61,000 in export taxes on petroleum sold abroad in May of 1932.

DOUGLAS GRAHAME

A Thought for the Month

MEXICAN oil companies recently raised the price of gasoline two cents a liter, which the government claims was unjustified, since no additional taxes had been levied.—WALL STREET JOURNAL.

A Correction

IN THE CONGRESS Number of WORLD PETROLEUM under the heading "Electricity, Oil's Many-Handed Servant" a typographical error occurred in referring to the cost per foot for drilling in Louisiana with Diesel-electric equipment; the cost per foot was given as $1,595 when obviously it should have been $1.595.

A similar error occurred on the following page when the article in dealing with economical well pumping said that power consumption had been reduced as much as 8.2 percent by the use of electricity. This figure should actually be 82 percent, which gives a much more striking illustration of the economies possible by the use of electricity.

▼

Chemical Construction

CHEMICAL Construction Corporation announces that they are moving their Engineering Department from Charlotte, N. C. to the company's New York office in order to secure closer coordination between the administrative and technical departments.

▼

GASOLINE pumps used in the desert by the Iraq Petroleum Company in connection with their pipeline transportation operations are Milwaukee and Wayne.

▼

RUSSIA

Official Figures for Soviet Oil Operations

	Crude Production (Bbl.)	Daily Average (Bbl.)	Run to Stills (Bbl.)	Drilling (F.A.)
January	10,382,400	334,917	9,510,900	157,486
February	10,162,600	362,950	9,167,900	169,396
March	11,928,700	384,800	11,003,300	228,532
April	11,824,400	394,150	10,472,700	228,790
May	12,794,600	412,729	11,434,900	213,744
June	12,489,400	416,313	11,641,700	198,729
July	11,837,000	394,567	10,887,800	214,385
Total 1st 7 months 1933	81,419,100	384,052	74,119,200	1,411,062
Total 1st 7 months 1932	91,539,700	429,764	87,191,882	1,569,779
Revised Quota 1933	170,800,000	467,670	155,000,000	3,315,000

Crude oil conversion ratio: seven barrels = one metric ton

Declining Production

PRODUCTION of oil in Soviet Russia has reached a point where it is not only falling hopelessly behind the plan but actually appears to be unable to keep pace with the tempo established last year, while exports, off 1,713,078 bbl. during the first half of 1933 as compared with the corresponding period of 1932, are justifying the feeling held in international oil circles for some time past, that Russia is temporarily of decreasing importance as an upsetting factor in world trade. This factor might prove significant if further efforts were made to reach international stabilization by agreement.

During July, Azneft, principal trust of the Soviet oil industry, fulfilled the plan 88.9 per-

cent, Grozneft, second most important trust, 72.0 percent, and Maineft, considerably less important, fulfilling its quota 82.0 percent. Baku production in July dropped to 8,396,700 bbl. from the high figure for June of 9,582,000 bbl. The excellent showing in June for Baku was the result of the production of Lok Batan No. 45, the tremendous gusher described in the July issue of WORLD PETROLEUM. Without the aid of several such unforseeable events the Soviet industry is going to experience great difficulty in meeting the quota of production for 1933.

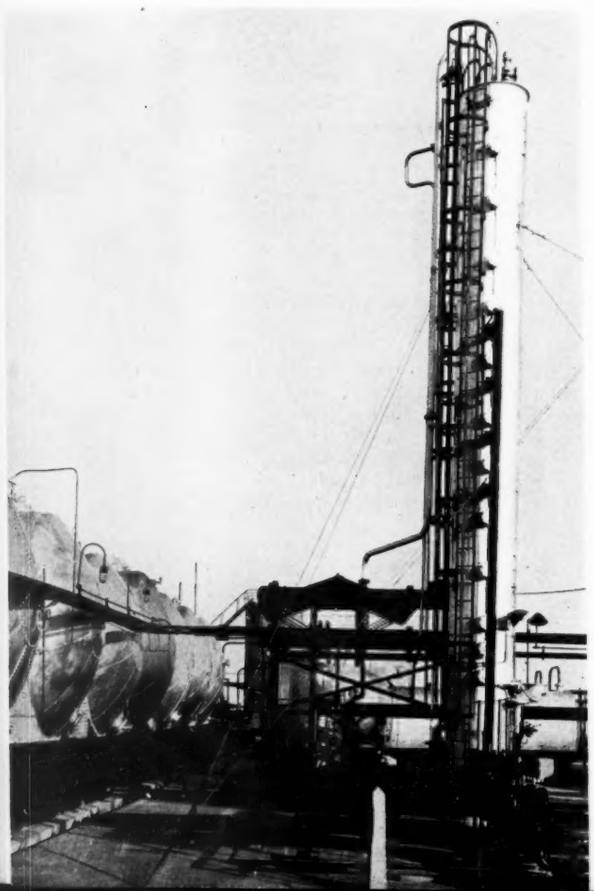
Drilling Division at Fault

AS HAS BEEN the case through the first half of this year, the drilling division continues to show the poorest attempt at plan fulfillment. Baku has been fortunate in finding prolific gusher production at shallow depths; drilling for July is not less than 47 percent behind the figure established by the plan. Non-producing wells in Baku are increasing because new wells are not being brought in fast enough to compensate for producing wells that have to be closed as a result of breakdown.

The main causes of arrears are lack of adequate equipment and inexperienced technical supervision which, in specific instances, operate as follows: Lack of proper alloys results in weak drilling bits, as pointed out by Professor Skvortzof, Soviet inventor of automatic drilling devices. The failure to supply meters indicating pressure on the bit, coupled with inexperienced drillers leads to too great a strain on the bit with consequent breakdown. Repairs are undertaken slowly, again because of lack of replacements and because drillers are not adept at using make-shift repair material.

In spite of these difficulties, Baku presents such a prolific reserve at shallow depths, that it has managed to keep production ahead of last year, an advantage which is lost to the whole industry through arrears at Grozni and Maikop.

Stabilization unit of El Aquila's 21,638 bbl. per day Minatitlan refinery in Mexico.



Soviet Oil Exports by Products

(Barrels)

	First Half 1933	First Half 1932
Crude oil	694,470	950,803
Gasoline	6,433,582	6,936,501
Kerosene and Ligroin	2,800,582	2,897,655
Solar and Gas Oil	2,333,898	2,092,986
Lubricating Oils	900,641	664,608
Diesel Oil	367,878	155,183
Fuel Oil	4,835,136	6,381,529
Total	18,366,187	20,079,265

Burden Rests on Azneft

FACING this state of affairs, the Central Committee of the Communist Party has issued an order requiring Azneft, not only to fulfill the plan for 1933, but to exceed it by 3,500,000 bbl. and to prepare sufficient wells for production to assure a supply of 140,000,000 bbl. of crude in 1934. Efforts are being concentrated on three sections of Azneft; Lok Batan, Kala and the Island of Artema. The order requires Azneft to have 85 wells drilled in the first two fields by September 25 and 215 wells in all three fields by the end of the current year. In addition to this, Baku is ordered to effect fuel economies that will make available 700,000 bbl. of fuel oil for shipment to industrial points by the close of navigation this year. The Central Committee of the Trade Union of Oil Men at Baku is attempting to force through this difficult program by obtaining a special force of trained technical men and experienced drillers; by authorizing heavy penalties for breakdowns; and by special orders for the best available equipment. In short, every effort is being made to bring the production of Baku up to the required figure and the success achieved will be a measure of the ability of the Soviet industry to overcome difficulties.

Soviet Oil Exports by Countries of Destination

(Barrels)

	First Half 1933	FirstHalf 1932
Italy	3,715,313	3,432,093
France	2,670,738	3,422,685
Germany	1,960,364	1,564,129
Britain	1,441,174	2,206,253
Spain	1,251,285	1,136,835
Belgium	958,706	1,045,261
Sweden	921,501	793,464
British India	670,747	653,520
Egypt	621,488	830,501
China	482,538	283,920
Denmark	423,801	336,854
Holland	300,796	249,704
Japan	289,184	610,295
Others	2,658,552	3,513,751
Total	18,366,187	20,079,265

Grozni Passed Peak in 1931

PRODUCTION at Grozni has decreased steadily since 1932. The peak of production was 56,443,100 bbl. in 1931, declining to 53,967,900 bbl. in 1932 and promising an even further decline in 1933. Drilling at Grozni is more difficult than at Baku and breakdowns in drilling seem to be more frequent, increasing the cost of production. Professor Skvortzof has found the drilling mud in use at Grozni to be of low quality. Unproductive interruptions are on the increase, having jumped from 27 percent of total working time in 1931 to 44 percent in 1932. Supplies of casing pipe, drilling tubes and compressor equipment furnished to Grozni have fallen off 11,600 tons from 1931 to 1932.

Resources Unavailable

GEOLOGICAL research and the discovery of several important fields, reported in WORLD PETROLEUM, indicate the presence of ample reserves to meet the rapidly expanding domestic demand. So far, however, it has proved impossible for the industry to tap these reserves in time to supply fully the needs created by the industrialization of the country and the mechanization of agriculture. While it is possible that conditions may be corrected, the future will bring the problem of deeper drilling, and this is just the division in which the industry is weakest. Skill and experience will be required to obtain more oil from greater depths than the industry now is able to obtain from comparatively shallow depths.

Soviet Scientific Conference

ON AUGUST 15 in Moscow the first Soviet Conference of Scientific and Engineering Forces convened for the purpose of laying down a definite program for the technical supervising of the Second Five Year Plan for the oil industry. The three main subjects under discussion are Exploitation of Oil Fields, Economics of Cracking, and Chemistry, Technology, and Economics of Oil in U. S. S. R. Prof. Gubkin, distinguished geologist of U. S. S. R., Lester Uren of California, Stanly Gerold of Pennsylvania, and others will deliver papers on the first subject. Messrs. Kapelushnikoff, Volkoff, Holland, Nuremburg and others will discuss the second subject. The third subject will receive the attention of Messrs. Gerr, Markevitch, Pipik and others.

Briefly the discussion will cover the geologic and economic characteristics of each oil region in relation to consuming centers and to considerations of national defense; exploitation from the point of view of the greatest possible recovery from each horizon; technology of cracking and the methods of obtaining high quality products by this process and the best methods of cracking for future employment within the Union; chemical processing of gases and the rules for future procedure in meeting this problem which is new to the Russian industry. Finally, the relation of costs to all departments will be considered in detail.

Current Events

BAKU: Cycle of operation of a Badger pipe still has been increased from 40 to 100 days by a shock brigade of workers.

Reorganization of the administration of Azneft is being undertaken under the supervision of M. V. Barinoff, chairman. The present 16 departments will be reduced to nine and the number of administrative employees will be reduced from 550 to 350.

Engineers are to be placed at the head of individual fields within the group and to be held responsible for results. They are, however, to be given complete responsibility for the employment of labor at their own discretion. Each field will be governed by its own budget and maintain separate accounts.

A gusher was completed for 14,000 bbl. through a two inch choke at Surakhani. This is said to be the first of 120 wells which are to be drilled in this field.

SARATOFF: At this Volga river town the construction of six cracking units is progressing satisfactorily, the furnaces having already been completed. The plant is designed to process Baku crude to supply the industrial and agricultural demands of the Volga plateau region.

LENINGRAD: Investigation by the Peoples Tribunal of a charge that Izorsk Pipe Works shipped pipe containing rejects, resulted in the sentencing to jail of prominent officials of the works.

ISHIMBAYEVO: A 6,000 bbl. per day gusher has been completed here, flowing crude under high gas pressure. Efforts are being made to cap the flow and construct earthen storage to accommodate the escaping oil.

J. WEGRIN

FINANCE

Paris: August

CONTRADICTORY reports published in the United States daily press concerning the application of the "Petroleum Code" to the industry have had a depressing effect upon the French oil share market. High levels attained during June and July have not been maintained; there has, on the contrary, been a sharp general decline.

Doubtless, other factors have also played their part, moral factors, such as the nervousness caused by the constant fluctuations of the dollar and rumors of further inflation in America. But these are of little importance compared to the very real issues at stake where proration measures and increased prices are concerned.

Until very recently tangible results in this direction were nil. A glance over the average daily production in the U.S.A. from June 24 to July 29 shows a steady increase of roughly 21,000 to 35,000 bbl., whereas the rise in prices, which had been a cause for optimism in June was at a standstill during July.

From a purely local point of view it may be reported with satisfaction that gasoline prices on the French market have increased somewhat recently as a result of the new agreement which the smaller distributing companies have arrived at. First grade gasoline is now quoted Fr. 150–155 per hectolitre and the price of the five litre tin varies around Fr. 8.25.—This increase in price does not apply to fuel oil or gas-oil. Distributing companies here are still indulging in cut-throat competition in these products and a barrel of fuel oil can be obtained for Fr. 46 whereas a barrel of gas-oil only costs Fr. 57 to 60.

IN ORDER to complete the extensive programme which the Cie Francaise des Petroles set out to accomplish in 1924 (WORLD PETROLEUM July 1932) the directors recently decided to increase the capital from Fr. 315,692,500 to Fr. 475,000,000 by the issue at par of 318,615 new shares of Fr. 500 each. Of these new shares 1,397 will belong to category "A" and 317,218 to category "B".

The French state or the Office National des Combustibles Liquides have a prior right to subscribe to the 1,397 "A" shares and to 110,118 "B" shares, on the principle that the state must always hold 35 percent of the company's capital. The remaining "B" shares will be offered to holders of old "A" and "B" shares, other than the state or the O.N.C.L. Present holders will have the right to subscribe one new share for every two old shares held.

This increase in capital has become a necessity because the C.F.P. is obliged to finance 23.75 percent of all the work undertaken in Iraq and Palestine by the Iraq Petroleum Company and by the Mediterranean Pipe Line Company.

In a recent report, issued doubtless for the benefit of shareholders prior to this appeal for fresh capital, the company stated that 36 wells are now ready to be opened up in the Kirkuk field; that the tubes of the pipeline on the Kirkuk-Tripoli branch have been laid on nine tenths of the route and that work should be finished by the end of August. The southern branch of the pipeline running from Haiffa to Kirkuk is not quite as advanced, however, and will not be finished until the autumn.

The pipelines have been constructed with a view to obtaining a carrying capacity of rather more than 28,000,000 bbl. of oil per annum, from which the C.F.P. will be able to count upon regular supplies of crude oil during the first six months of next year—in lesser quantities at first—but which will gradually increase to 7,000,000 bbl.

THE S.A.E.M. PECHELBRONN disappointed those of its shareholders who expected a good return for their money this year by declaring that profits were not sufficiently large to justify the distribution of a dividend. In the opinion of the board, 1932 was the worst year they had ever been called upon to face, from every point of view, and this in spite of the fact that consumption of petroleum products in France had increased by about 1,500,000 bbl.

It is obvious that Pechelbronn has felt the strain of fluctuating prices very much, yet of all the companies distributing in France, it is one of the most favored because it has been exempt by the state from paying the "taxe à l'intérieure" of Fr. 27 per hectolitre on the products refined from crude oil extracted in Alsatia—which amounted to 518,854 bbl. in 1932 as compared with 512,862 bbl. the previous year.

It is a little surprising therefore to see that the S.A.E.M. Pechelbronn, one of the oldest existing companies in France, which possesses a vast organization comprising drilling, refining and distributing operations, besides many affiliated companies and a capital of Fr. 81,000,000 plus debenture bonds amounting to Fr. 70,588,500, should only declare gross profits of Fr. 10,896,489 and net profits of Fr. 404,688.

The company's balance sheet is a little obscure. No mention is made in the profit and loss account of working or overhead expenses which are lumped together with other items. With regard to assets the following details are of interest: Capital expenditure Fr. 99,146,-105.15; supplies and goods Fr. 30,089,168.92; participations; Fr. 70,098,936.90; liquid assets Fr. 11,244,106.23; debit account Fr. 30,687,-353.57. Among the liabilities: Fr. 81,000,000 capital; Fr. 70,588,500 debenture stock; reserve fund Fr. 15,052,518.70; provident fund Fr. 2,595,388.70; credit account Fr. 55,442,-709.67. These figures do not compare entirely favorably with those of the previous year which showed total assets of Fr. 251,061,232 as compared with Fr. 241,265,670 in 1932.

In order to be in a position to utilize to the full in future the importing licenses which it holds, (126,000 bbl. approximately) the S. A. Pechelbronn has come to an agreement with Les Consommateurs de Pétrole and the S. A. Brest Port Pétrolier creating the new company, Pechelbronn-Ouest.

PECHELBRONN-OUEST has been founded for the express purpose of constructing a refinery at Donges which will handle crude oil that Pechelbronn is not in a position to handle at Merkwiller and it will also facilitate the distribution of the parent company's products in western France.

Forty thousand shares of Fr. 500 each have been issued to form a capital of Fr. 20,000,000. Pechelbronn holds 85 percent of these shares and the Consommateurs de Pétrole the remaining 15 percent.

The new company has already obtained authorization to take over both Brest Port

Petrolier's and Pechelbronn's special importing licences and will also, by the terms of the agreement with the Consommateurs de Pétrole, have the benefit of the use of that company's existing plant at Donges. The same power plant, water supply, and other central stations will doubtless be used for both refineries.

SOCIÉTÉ FRANÇAISE des Pétroles de Silva Plana which is chiefly engaged in drilling operations in Poland, announces net profits of Fr. 1,180,699.—for the financial year ended December 31, 1932. These results are too meager to allow for the distribution of a dividend; it has therefore been decided to carry the balance forward.

During the financial year under review the S. de Pétroles de Silva Plana found itself in such difficulties that the only obvious way out of them was to make a drastic reduction in capital. This was rapidly accomplished and the company now has a capital of Fr. 93,400,000 as compared with Fr. 186,812,500 previously invested. A further reduction is contemplated for this financial year, and the board has been authorized by shareholders to buy up such quantities of shares on the Bourse as it deems necessary, using the sinking fund for the purpose, on condition that the price of the shares is well below par.

Silva Plana's difficulties have chiefly been created by the fact that the company is exploiting in Poland where conditions are by no means encouraging. In order to reduce overhead expenses and to complete its organization Silva Plana became affiliated to the S. A. Limanowa in 1926 with the result that one refinery now serves both companies and that they have the same sales organizations. Their interests in Germany are handled by S. Milag which is engaged in the distribution of petroleum products and whose turn-over for 1932 amounted to Rm. 6,943,246 although actual sales had decreased from 339,766 bbl. in 1931 to 296,092 bbl. in 1932. The S. Dupag which owns storage facilities in Hamburg handled 388,962 bbl. of products during 1932 as compared with 430,962 bbl. in 1931.

In Austria results obtained have been similar. The S. Wienpetrol only sold 227,087 bbl. of products in 1932 whereas in 1931 it was able to market 267,260 bbl.; prices having risen however, financial returns were better and amounted to 8,658,330 shillings as compared with 8,497,239 shillings in 1931.

FINANCIAL year of the Cie Standard Franco-Americaine closes on June 30 and the company is due to hold the annual shareholder's meeting in a short time when it is reported that the board will propose a dividend of four percent (Fr. 20) and that the company reports net profits of Fr. 6,947,500.

This is an improvement on the results of the previous year which only amounted to Fr. 77,247 and it will be encouraging to shareholders who have been waiting patiently since June 1930 to obtain some return for capital invested.

E. J. ANDRÉ.

New York: August

SECURITIES markets for the greater part of August followed a listless pattern with trading volume at sharply reduced levels compared with the hectic activity of preceding months. Price fluctuations were confined within a narrow trading range in the absence of any important news developments of a nature to maintain a sustained upward trend in market quotations. Industrial activity as measured by carloadings, steel output and electric power production remained well above the levels of a year ago and close to the peak of the movement which had its inception following the banking crisis of the early spring, although some let-down was apparent during the month (a normal seasonal expectation). Trading dullness afforded a breathing spell for markets to weigh the progress already accomplished in the direction of economic recovery and to appraise the prospects for further improvement in the light of the administration's plans for the future.

Naturally the greatest interest centered in the efforts to bring American industry under the provisions of the NRA. For a time it appeared that arbitrary measures might have to be resorted to in order to draw up satisfactory codes for the steel, oil and lumber industries which might have seriously impeded the recovery program. With most industries now committed to a policy of shorter hours and higher wages (meaning increased production costs) it follows as a corollary that an increase in purchasing power is essential to maintain and extend the recent pace of business activity. There is no precedent by which to judge the probable effects of measures now in effect and aside from the idealistic aspect of the NRA and the fervent hopes for its success it remains to be seen whether it can meet the tests of actual practice. The threat of inflation as a market factor has receded somewhat but the inflation needle can be brought forward if the present program gives signs of faltering.

ALTHOUGH Standard Oil Company of California failed to cover dividend requirements in the first half year the company maintained the regular rate by the declaration of a dividend of 25 cents a share payable September 15 to stock of record August 15. For the six months ended June 30, 1933, net income amounted to $1,199,414 after all charges, equal to nine cents a share on 13,200,900 shares of no par value capital stock, compared with net profit of $6,916,544 or 53 cents a share in the similar period of 1932. All of the profit was contributed in the second quarter which showed a net income of $1,918,401, or 14 cents a share, as compared with a net loss of $718,987 in the preceding quarter. In the second quarter of last year the company earned $3,986,302 equivalent to 30 cents a share. Actual cash income in the first half of the year (i.e. before bookkeeping charges) was more than ample for dividend needs.

SIMMS PETROLEUM reported net loss of $154,405 in the second quarter compared with a net loss of $238,891 in the preceding quarter and net loss of $60,259 in the second quarter of last year. Current assets as of June 30, 1933, including cash of $470,076, amounted to $1,933,518 and current liabilities were $382,756.

FOR THE SIX months ended June 30, 1933, Houston Oil showed a net loss of $734,673 after all charges as compared with a net loss of $121,534 in the similar period of last year. Second quarter operations showed a loss of $379,379 as compared with a net loss of $355,294 in the preceding quarter and net loss of $141,680 in the second quarter of last year.

CONSIDERING the unsettled price situation earlier in the year the report of Sun Oil Company for the first half of the year was much better than might have been expected. Net earnings in this period were equal to 53 cents a share on 1,591,110 shares of no par common stock as compared with $1.13 a share in the similar 1932 period. Gross operating income for the six months declined to $27,445,037 from $30,820,931 last year, partly as a result of lower prices. The decline in gross, however, was offset to a considerable extent by substantial reductions in operating expenses. Expenses totalled $26,353,910 as compared with

Paris Bourse Prices

1932		Share	July 17 to August 9					Position on August 11, 1932
Div.	Par.		First	High	Low	Last	Change	
....	500 Lei	Astra Romana	89	89	76	78	− 11	62
....	500 Lei	Colombia	78	78	66	..	..	62
10 Lei	500 Lei	Concordia	71	71	59	59	− 12	47
....	500 Fr.	Franco Pol. Pétroles act.	533	533	442	490	− 57	55
....	10$	Franco Wyoming	222	222	193	193	− 29	182
....	500 Fr.	S. G. des Huiles de Pétrolé act	419	420	330	385	− 34	285
....	....	" " part	90	92	81	89	− 1	60
....	500 Fr.	C. Française des Pétroles	515	530	503	506	− 9	400
45 Fr.	500 Fr.	Lille Bonnières Colombes prio	795	835	485	835	+ 40	663
20 Fr.	500 Fr.	" " ord	496	502	285	490	− 6	395
....	....	Malopolska act	19	19	15	15	− 4	28
....	....	Malopolska part	95	99	83	88	− 7	210
....	....	Mexican Eagle	45	47	41	..	..	43
5 Fr.	250 Fr.	Omnium Inter. des Pétroles.	77	78	68	68	− 9	71
50 Fr.	500 Fr.	Pechelbronn	300	390	277	277	− 23	330
45 Fr. B.	500 Fr. B.	Petrofina	455	455	428	428	− 27	416
5 Fl.	1000 Fl.	Royal Dutch	18,845	18,845	17,430	17,696	−1,149	15,750
5 Fl.	100 Fl.	Royal Dutch 1/10	1,885	1,885	1,744	1,770	− 115	1,585
1/5 d.	1	Shell	233	235	214	218	− 15	206
....	500 Fr.	Steaua Française	343	343	300	306	− 37	229

$28,710,473 in the same period of 1932. Depletion was increased to $562,909 from $282,938 a year ago while depreciation and amortization were practically unchanged at $2,581,869 against $2,579,576. No deductions for federal taxes were reported for the period as the taxable net income was less than the allowable depletion under the government regulations. Although the company made no report covering first quarter operations it is logical to assume that the second quarter contributed practically all the net income reported in the half year period in view of the sharp rise in gasoline prices in the second quarter. Curtailment of development work was of considerable influence in reducing costs in the first half of the year. Last year intangible development costs in connection with the East Texas work and elsewhere amounted to $1,123,270 while in the same period this year the total was only $672,237, or roughly a saving equal to 29 cents a share on the common stock. Despite the curtailment of this work, however, Sun has established itself strongly in the various crude oil fields so that it is assured of an ample supply of crude at low prices. With any further increase in gasoline prices the operating economies instituted in the past three years should mean substantial increases in net income.

New York Stock Prices

1933 High	1933 Low	Current Div. $ per Annum	Stock (Par Value $)	July 24 to August 19 Sales (Shares)	First	High	Low	Last	Net Change[1]
41¼	18½	2.00	Amerada (No)	15,900	30	37¼	30	35½	+5½
31⅞	12⅜	1.00	Atlantic Refining (25)	85,800	24½	27¾	22⅝	27⅜	+4¾
11	3	....	Barnsdall (5)	91,400	7⅛	9¼	7⅛	8⅝	+1⅛
4	¼	....	Colon Oil (No)	21,600	2⅛	2¾	2⅛	2⅝	+ ½
15¾	5	....	Consol Oil (No)	316,000	10½	12⅝	9⅛	11⅝	+1⅞
19½	4⅞	....	Continental Oil (5)	162,500	15	16⅞	12¾	15¾	+1¾
8⅝	2¼	....	Creole Petroleum (5)	32,800	5⅞	7¼	5⅝	7	+1½
62	24	....	Gulf Oil Corp. (25)	15,200	46⅞	52¼	43⅜	51	+7¾
88	40	2.00	Humble Oil & Ref. (25)	9,700	70	79	69⅛	77	+9
15¼	6½	0.50	Imperial Oil, Ltd. (No)	26,000	14	14⅜	12	13½	+1⅞
19⅞	8⅞	§0.28	International Petr. (No)	17,600	16½	17½	16	17¼	+2
16	3¾	....	Mid-Continent (No)	34,500	11½	12⅞	10⅛	12¼	+1⅜
17⅝	4¾	....	Ohio Oil (No)	145,400	13	13⅞	11	13	+1⅛
17⅞	4¾	....	Phillips Petr. (No)	91,700	12⅜	15	12	14⅜	+2⅛
11⅞	2½	....	Pure Oil (25)	59,100	8⅛	9⅞	7½	9	+1
36⅜	17⅝	†6%	Royal Dutch N. Y. (13⅓)	5,500	32⅜	33⅝	29⅞	32	− ⅝
33⅞	15	‡0.60	Seaboard Oil (No)	38,000	21¼	27⅜	21¼	25¾	+5½
11⅝	4	....	Shell Union (No)	70,400	8⅜	9	7½	8½	+ ⅝
12⅜	4⅞	0.25	Simms Petr. (10)	6,100	8⅛	9⅞	8⅛	9	+1
9⅞	3	....	Skelly Oil (25)	5,700	6½	8⅝	6	7	+1
15½	6	....	Socony-Vacuum (25)	229,400	11¾	12⅞	10¾	12½	+1⅛
40⅛	19½	1.00	Standard Oil of Calif. (No)	72,600	35¼	37¾	33⅛	37⅛	+4⅛
33⅞	17	1.00	Standard Oil, Ind. (25)	58,200	30	30¾	27½	29¼	.....
26¼	12¾	....	Standard Oil, Kansas (25)	1,200	21	21	19	21	+ ½
19¼	8¾	1.00	Standard Oil, Ky. (10)	9,100	17	17⅞	15⅝	16½	+ ½
41⅛	22¾	1.00	Standard Oil, N. J. (25)	156,300	35¼	38½	33½	37½	+4⅛
50	35	*1.00	Sun Oil (No)	2,000	44	44	42	43	.....
28⅝	10¾	1.00	Texas Corp. (25)	92,600	22⅝	24⅜	20⅜	23¾	+2¾
10¾	3⅛	....	Tide Water Assoc. (No)	65,700	8¼	9⅝	7¾	9¼	+1¼
23⅜	8½	1.00	Union Oil of Calif. (25)	30,400	20⅛	20¼	18⅛	19½	+ ⅞
1½	⅛	....	Venezuelan Petr. (5)	4,900	1	1	¾	⅞	.....

[1] Since close of last month's table. †Paid for 1932—no regular rate.
‡ Also 10c extra this year.
* Also paid 2% in stock for 1932.
§ Latest dividend—in Canadian funds.

STANDARD OIL of Indiana has made a further step in its policy of reducing funded debt which will mean that by the end of this year all bonded indebtedness will have been cleared away. Stanolind Pipe Line Company, a subsidiary, has called for redemption October 1 at 103 and interest the outstanding five percent bonds due October 1, 1942. At the end of 1932 there was $11,204,500 of this issue outstanding. All of the bonds which have been retired in the past three years represented assumed obligations as Standard of Indiana has always financed its operations and expansion from earnings. At the end of 1930 consolidated funded debt of Standard of Indiana and subsidiaries amounted to $57,575,500. Despite the retirement of such a large amount of bonds the company maintained its usual strong financial position. Current ratio at the end of 1932 was 9.24 to 1, current assets being equal to $228,134,757 and current liabilities only $24,682,368. Cash alone was well in excess of all current liabilities, being equivalent to $40,464,242 and marketable securities $47,731,676, or a total of $88,195,918. Redemption of $21,225,000 of Stanolind Crude Oil Purchasing bonds on January 16 of this year reduced cash assets to that extent.

BARNSDALL CORPORATION also experienced a substantial loss in the first half year in reflection of the low prices prevailing in the first quarter. The company reported net loss of $1,835,299 after charges and taxes as compared with a net loss of $359,941 in the same period of last year. In the June quarter of 1932 the company had a profit of $30,183, equal to one cent a share on 2,258,779 shares of $5 par value capital stock.

REPORT of Continental Oil Company for the second quarter shows consolidated net loss of $2,135,722 after all charges. This compares with net loss of $2,825,247 in the preceding quarter and net income of $1,616,346 or 34 cents a share on 4,738,593 shares of $5 par value capital stock in the second quarter of last year. For the first half year net loss amounted to $4,960,969 after all charges, as compared with a net loss of $252,502 in the similar period of 1932. Current assets as of June 30, 1933, including $7,572,246 cash and U. S. Government securities, amounted to $27,262,571 as against current liabilities of $5,167,100.

REPORT of Skelly Oil Company and subsidiaries for the quarter ended June 30, 1933, showed a net loss of $870,289 after all charges including a credit of $103,349 discount on debentures purchased for sinking fund. This compares with a net loss of $1,282,679 in the preceding quarter and net profit of $235,107, equal after preferred dividend requirements to six cents a share on 1,011,753 shares of $25 par value common stock in the second quarter of 1932. For the first half year net loss was $2,152,968 after taxes and charges and after crediting discount on debentures purchased for sinking fund as compared with a net loss of $43,521 in the first half of 1932.

AFTER SHOWING losses from first half year operations Amerada Corporation has returned to a profitable basis with July and August results expected to show a net profit after all charges. The company reported a net loss of $308,095 in the second quarter as compared with a net loss of $201,939 in the preceding quarter and net profit of $327,161 equal to 43 cents a share on 766,375 no par shares of capital stock in the second quarter of 1932. For the six months ended June 30, 1933, net loss was $510,034 after all charges comparing with net profit of $552,545 equal to 72 cents a share in the same period of last year.

FRANK PHILLIPS, president of Phillips Petroleum Company recently stated that the company is now making a net profit after deducting all charges. He also stated that gasoline sales in the first half of the current year were 13 percent ahead of those for any other like period in the company's history and that a maintenance or betterment of present price levels would mean a substantial improvement in the company's position. Phillips Petroleum reported a net loss of $5,324,588 in the first half of the year as compared with net loss of $812,492 in the similar period of last year. In the first six months the company retired $1,506,000 of its bonds in accordance with sinking fund requirements and has in its treasury more than enough bonds to meet sinking fund requirements for the remainder of this year.

SHELL UNION Oil Corporation reported net loss of $14,105,387 in the first six months as compared with net loss of $2,935,426 in the similar period of 1932. Loss of $4,865,837 in the second quarter, however, showed a substantial reduction from the deficit of $9,239,550 in the preceding quarter. In the second quarter of last year the company experienced a net loss of $193,126. As of June 30, 1933, cash and call loans amounted to $27,885,206 as compared with $34,540,927 a year earlier. The reduction in cash is ac-

counted for by purchases during the year of the company's own debentures. Leaving this factor out of consideration there was an actual increase in cash during the year.

C. C. BAILEY

London: August

BUSINESS in oil shares has been restricted during the past month by the holiday season, and price movements have been erratic, with a big majority of declines. Losses, however, have been small in comparison with the advances in immediately preceding weeks, and dealers report a fair volume of buying orders which, if small, are moderately consistent. Several share prices ran into new high ground around the end of July, including Anglo-Persians, under the influence of the annual report, and Burmahs, for which a considerable investment demand continued. Attocks also touched a new high level for the current year, although no news was forthcoming to explain the advance. In all cases prices have receded from the best points touched, but Mexican Eagles are an exception, payment of the participating preference dividend keeping the price of the common shares firm. The support which prices generally have received in recent weeks is partly due to the firm tone of all "equity" shares in London, and is also attributable to hope of the ultimate adoption of a business code by the United States oil industry. It is notable, nevertheless, that American changes in crude prices and fluctuations in daily average production are now having relatively little effect on the market here. British investors and operators in oil shares, realizing that America is still the crux of the situation, are evidently determined to await actual results of control in the United States industry before committing themselves heavily in the share market.

DIFFICULT conditions for distributors in the British market during the greater part of last year are reflected in the annual report of Anglo-American Oil Company, the central unit in the British selling organization of the Standard of New Jersey group. The company, which is controlled through the Standard Oil Export Corporation, has an issued capital of £4,269,410, and numbers British Mexican Petroleum Company and Redline-Glico Limited among its own subsidiaries. Loss on actual trading for 1932 was £12,611, depreciation allowance was £847,685, debenture interest called for £94,951 and taxation absorbed £7,807. Against this, £39,015 was received by the company in dividends and £24,075 from interest and exchange transactions. The net result therefore, was a deficit on the year of £899,964, which is a slight improvement on the comparable figure for 1931. Last year's operations transformed a surplus of £344,735 on revenue account into a deficit of £555,229, but the balance sheet still shows a good surplus of liquid assets over current liabilities. In accordance with the directors' wise policy of maintaining the highest level of efficiency, negotiations are in progress for replacement of some of the company's vessels by units which will meet modern requirements.

Standard of New Jersey interests acquired control of Anglo-American Oil in January, 1930, by exchanging one 5 percent $100 guaranteed preferred share in the Standard Oil Export Corporation for 5⅗ Anglo-American shares then in the hands of the public in this country. The acquisition was undoubtedly valuable to Standard of New Jersey, but former British shareholders in Anglo-American have up to the present done better as holders of the Export Corporation preferred shares, guaranteed by Standard of New Jersey, Standard of Louisiana, Carter Oil and Humble Oil, than they would have done by retaining their equity interest in the British distributing concern. Standard Oil Export preferred are changing hands at over their par value. They are redeemable at 110 percent on or after December 31, 1935.

ENTRY of Lobitos Oilfields into the refining field in this country is regarded in the market as a natural development, and it is recalled that remarks of the late Lord Forres, when presiding at past meetings of the company, suggest that the possibility of undertaking refining has been in the minds of the directors for several years. Having satisfied themselves that output of a refinery could be disposed of without incurring large expenditure on marketing equipment, the directors have now acquired a convenient site for a small refinery at Ellesmere Port on the Manchester Ship Canal, with facilities for expansion if found desirable. Reasons for the new move are the present difficulty of selling crude at remunerative prices, the desirability of obtaining fuller benefits from the high quality oil produced by the company's Peruvian subsidiary, and elimination of exchange difficulties by direct sales of part of the output in sterling. Shareholders are notified that no new capital issue will be involved by the new development, as the company has ample resources to finance it. This was quite evident in the last balance sheet, which showed a big surplus of liquid assets, and reserves totalling £1,789,405 against an issued capital of £1,000,000.

OPERATIONS of Tocuyo Oilfields of Venezuela, the £2,000,000 company registered in 1928, were again disappointing last year. Production totalled 107,093 bbl. a reduction of 72,800 on the figure for 1931, and sales, at 81,830 bbl., were 43,015 bbl. down. Oil revenue fell by £10,895 to £31,340, and while cuts in costs were severe, including a reduction of £36,429 to £45,258 in general expenses in Venezuela, the result of the year's working was a loss of £16,624, although no allowance was made for depreciation. The debit on profit and loss account is now £272,853. Drilling in 1932 was restricted to areas where production appeared most probable, and eight wells were completed during the year, of which seven were put into production and one abandoned. In April this year drilling was commenced to test the flank of the El Mene structure south of the main strike fault, and the well was completed in June. Although the expected sands were found, they proved to be entirely devoid of oil, and the directors state in their report that this makes it improbable that any satisfactory accumulation of oil in the El Mene Series can be expected in the south flank of this structure. At the annual meeting the chairman stated that in view of the disappointing results on the company's own properties, expenditure there has been reduced to a minimum. This policy will be assisted by the arrangements made with the North Venezuelan Petroleum Company, and in view of Tocuyo's connection with Trinidad Leaseholds and the powerful Central Mining and Investment Corporation, it may be taken for granted that its interests will have every chance of proving their value. The current price of around 2s. for the company's £1 shares, however, while reflecting past discouragements, also suggests that prospects are considered quite speculative.

ALEC H. DAY

London Stock Exchange Prices

1933 High	1933 Low	Last Year's Div. % per Ann.	Share	July 13 to August 11 First	High	Low	Last	Change
2 3/32	1 5/32	3½	Anglo-Ecuadorian	2 3/32	2 3/32	1 1/16	1 1/16	− 1/32
1 5/8	1 7/16	10	Anglo-Egyptian "B"	1½	1½	1 7/16	1 7/16	− 1/16
2 9/32	1¾	7½	Anglo-Persian	2 7/32	2 9/32	1 31/32†	2 1/16†	− 5/32
1 5/16	2 9/32	25	Apex Trinidad (5s.)	1 5/16	1 5/16	1 7/32	1¼	− 1/16
2 3/32	1 1/32	....	Attock	1 7/32	2 3/32	1 7/32	2 1/32	+ 1/8
5/8	½	2½	Brit. Borneo (6s.)	9/16	9/16	1 7/32	1 7/32	− 1/32
¼	3/16	....	Brit. Burmah (8s.)	¼	¼	¼	¼	.....
5/16	5/32	....	Brit. Controlled ($5)	9/32	9/32	¼	¼	− 1/32
1 1/16	1 3/32	....	Brit. Controlled Pfd. ($5)	5/8	5/8	9/16	19/32	− 1/32
4 1/16	2¾	20	Burmah	4 1/32	4 1/16	3 27/32	4 1/32	.....
3/8	¼	....	Canadian Eagle (No par)	1 1/32	3/8	5/16	1 1/32	.....
9/32	3/32	....	Kern River (10s.)	9/32	9/32	¼	¼	− 1/32
2 3/8	1½	12½	Lobitos	2 3/8	2 3/8	2 3/16	2¼	− 1/8
4 5/32	3 7/16	14‖	London & Thames Haven	4 1/8	4 1/8	4 1/32	4 1/32	− 3/32
1 3/32	5/16	....	Mexican Eagle ($4 Mex.)	7/16	1 5/32	7/16	1 5/32	+ 1/32
2 1/32	3/8	2½	Phoenix	2 1/32	2 1/32	1 9/32†	5/8†	− 1/32
23 1/8	15 3/8	6	Royal Dutch (fl. 100)	21 3/4	22 1/8	20 1/4	21 1/8	− 1/8
2¾	1 29/32	7½*	Shell Transport	2 23/32	2¾	2 15/32	2 9/16	− 5/32
11¾	5 7/8	....	Shell Union (No par)	11 1/8	11 1/8	8¾	9 3/8	− 1¾
5/8	1 1/32	4	Steaua Romana	1 9/32	1 9/32	9/16	1 9/32	.....
2 31/32	2 5/32	12½	Trinidad Leasehold	2 27/32	2 7/8	2 21/32	2 15/16	− 3/32
5/16	3/16	....	Untd. Brit. of Trinidad (6s. 8d.)	9/32	9/32	¼	¼	− 1/32
1 31/32	1 11/32	12½	Venezuelan Oil Concessions	1 29/32	1 15/16	1¾	1¾	− 3/32

Nominal value of shares £1 unless otherwise stated by bracketed figures.
*Denotes Tax-free dividend. †Denotes "Ex-dividend" price.
‖10 per cent dividend tax free plus 4 percent bonus less tax.